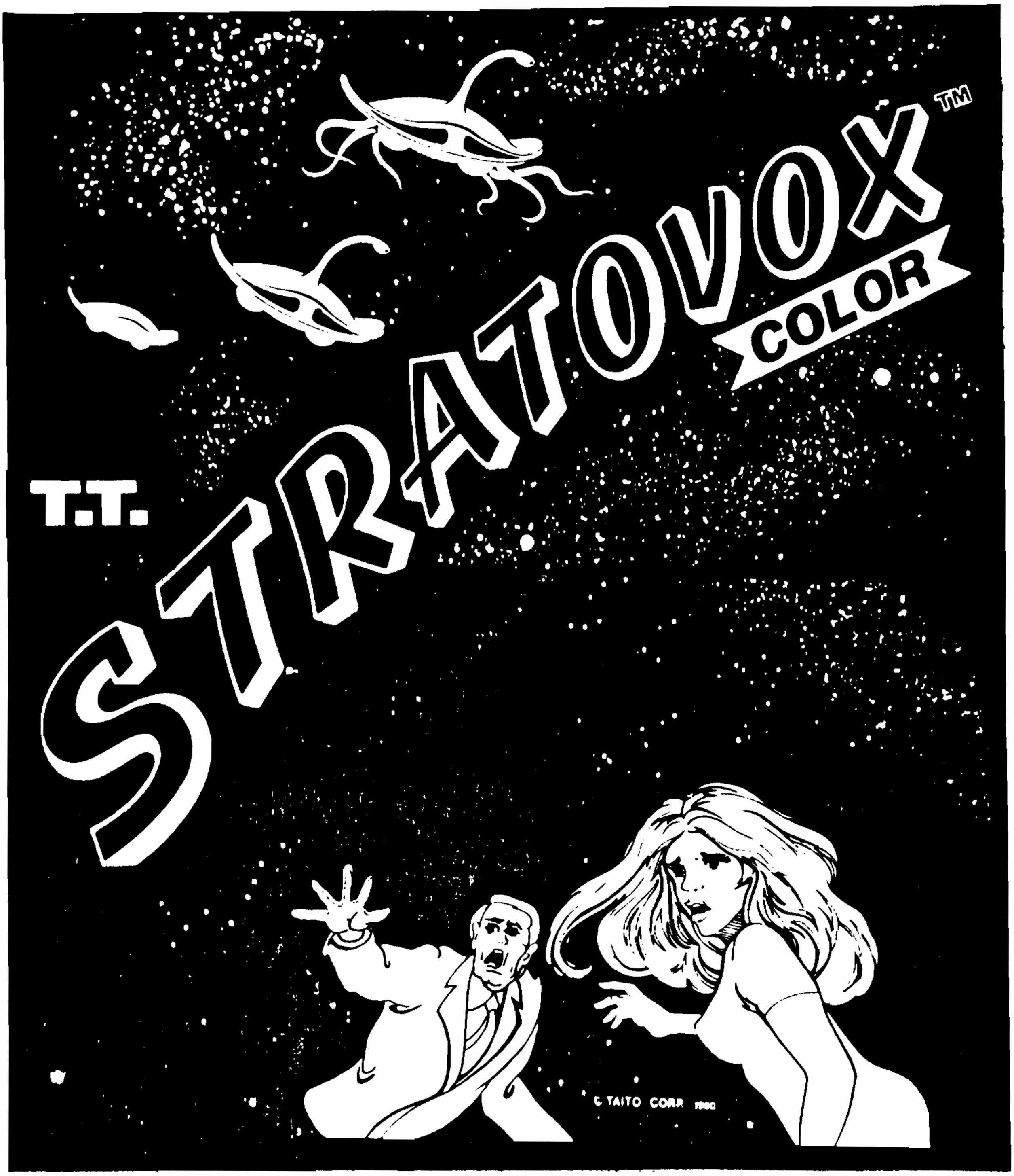


SERVICE INSTRUCTIONS AND PARTS CATALOG

TAITO

TAITO CORPORATION

PRO70019

1. Name of Part (See Fig. 1 and 2)

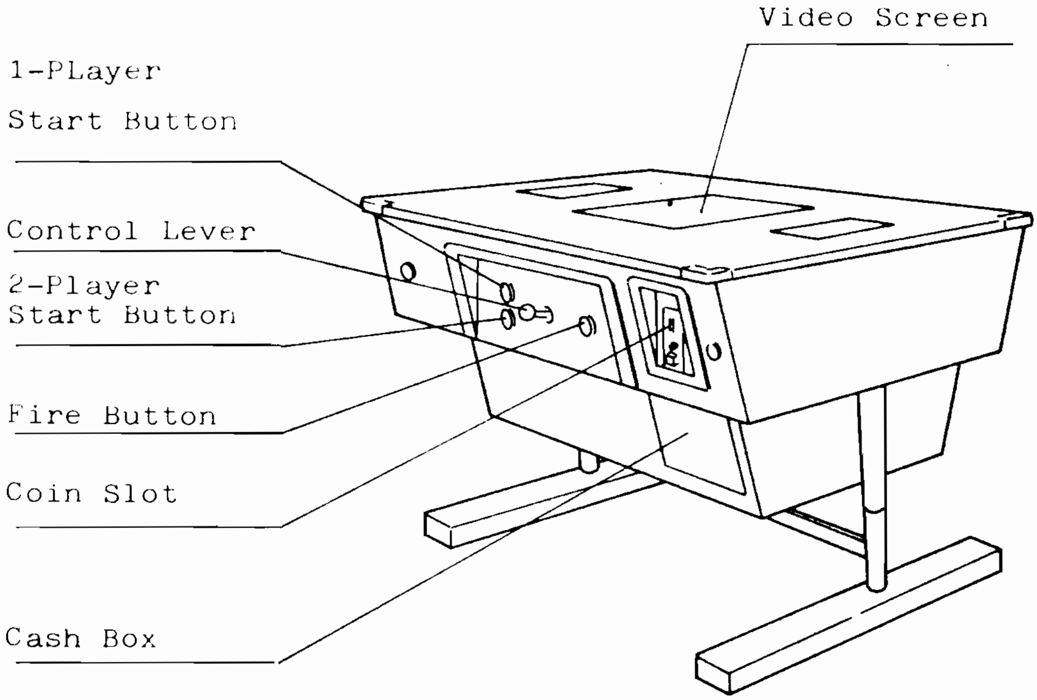


Fig. 1

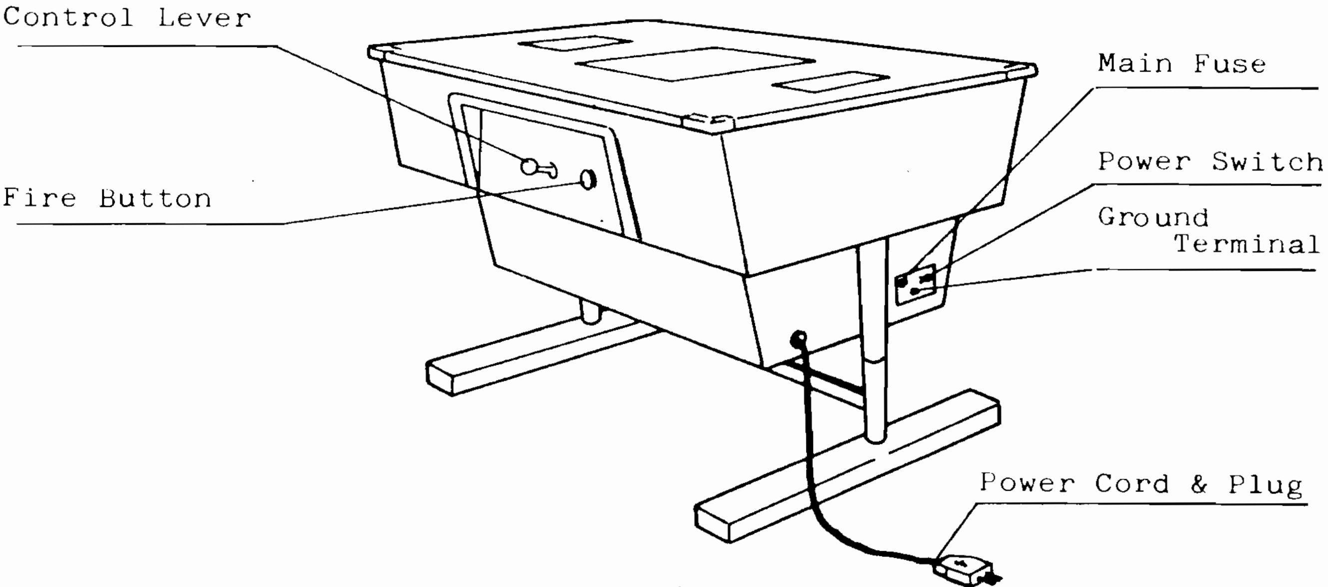


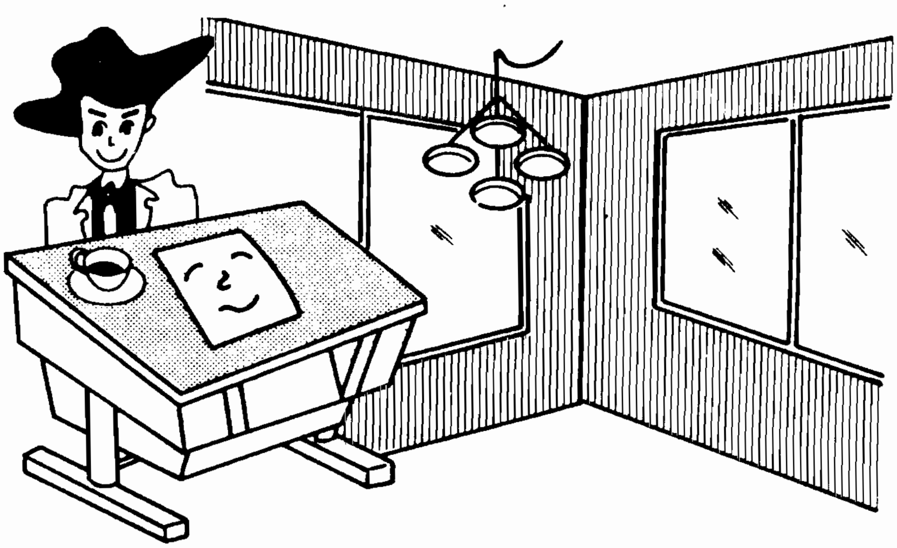
Fig. 2

2. Transportation and Installation

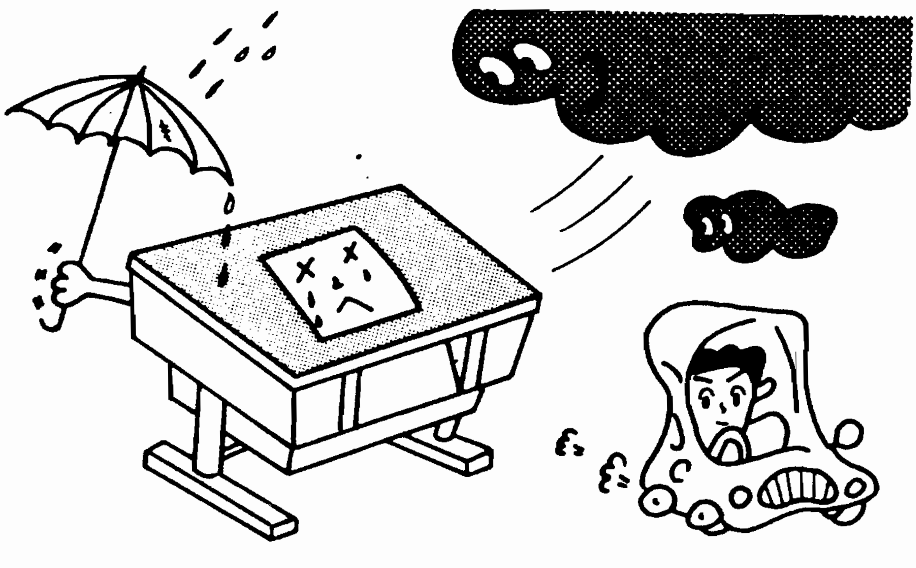
- o Avoid rough handling in transportation; the picture tube is fragile.

- o Taito "T.T STRATOVOX" is for indoor use.

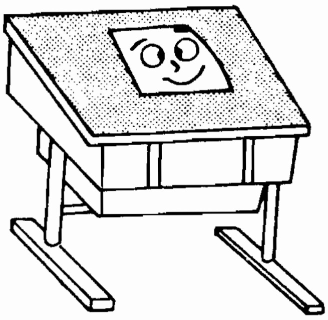
- o Install the machine indoors only.

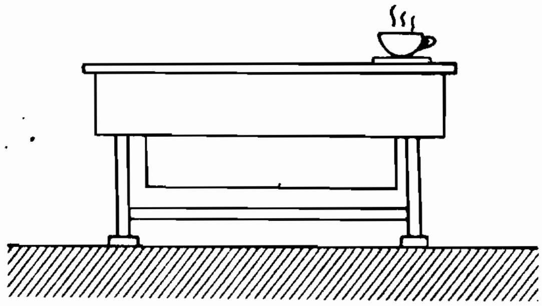


- o Do not install the machine outdoors.



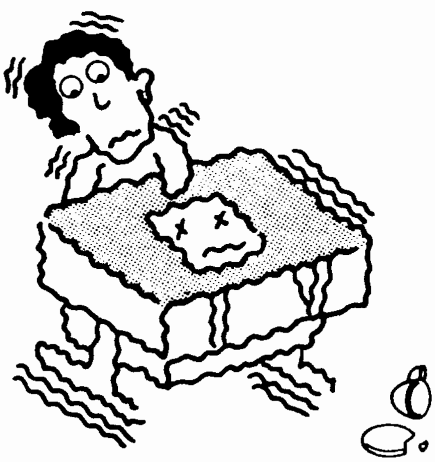
o Install the machine on a flat-surfaced floor and provided suitable space around the machine.

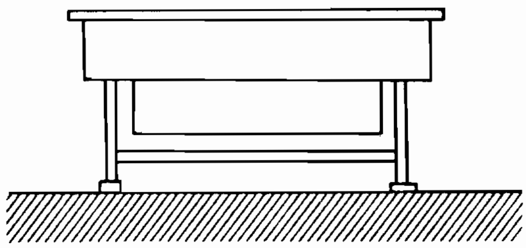




(Floor)

o Do not install the machine in location with vibration.

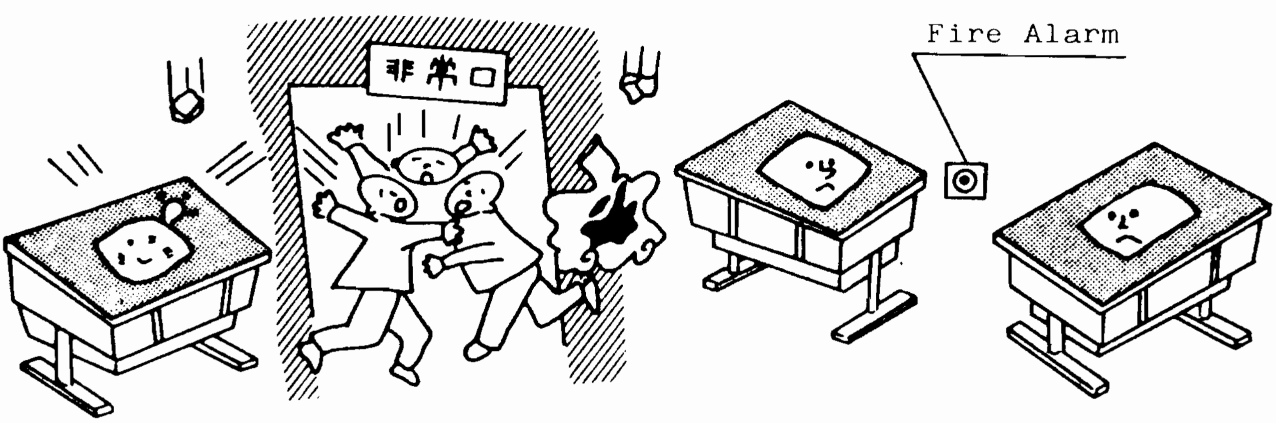




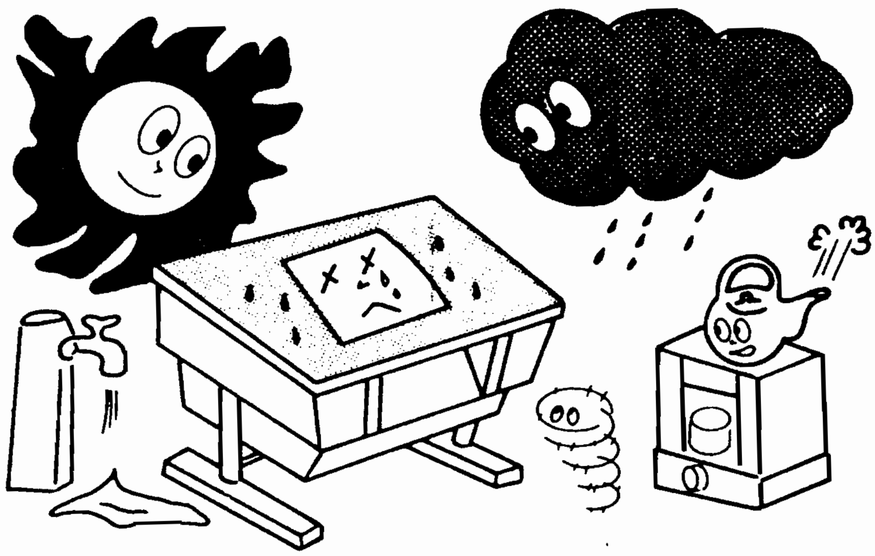
(Floor)

o Do not install the machine in dangerous places viewed from the angle of disaster prevention.

(Emergency Exit)



- Do not install the machine in location with exposure to direct sunlight or excessive heat in order to prevent the unit from rising internal temperature. Also, do not install the machine in humid dusty places.



- Connections may be losen during transportation.
  Ensure all connections to the PCB's and the connectors are secure before plugging in.

- Never fail to connect the ground terminal.

- Insert the power plug into a proper outlet and turn the power switch on.

- In case the machine does not work properly after the power switch was turned on.
  Make sure the voltage properly exists on each output line.
  (See "Adjustments on Switching Regulator PC Board page 5 and page 7 of this manual.)

3. Handling Note and Warning

Note:

- o Erroneous picture may appear on the screen when the machine is first switched on. This is typical of the CPU circuitry, and will correct itself automatically when the power switch is off and on.
- o No picture may appear on the screen for a while when the machine is switched on at a subzero temperature in the location. This is also typical of the solid-state circuitry.

Warning:

- o This game uses a CPU and the latest solid-state circuitry for long life, however, as with sophisticated electronic equipment certain precautions must be observed to avoid damage.
  - (1) Do not attempt to service with ordinaly testing equipment, since the internal voltage of the testing equipment may cause damage to the circuitry.
  - (2) Never connect or disconnect any of the solid-state modules while the power is on.

4. Routing Meintenance

- o Because of the solid-state electronic, this machine should require very little maintenance and only occasional adjustments, however, it is necessary to take measures to insure it is daily safety.

5. Play Instructions

- o Insert coin(s).
- o Select game for one or two players.
- o Use joystick to control your aim and shoot flying saucers.
- o If you hit flying saucer which is just kidnapping an astronaut, you score mystery points.
- o Game is over when all astronauts have been kidnapped or all laser cannons have been destroyed.

6. Adjustments on Switcing Regulator PC Board
(See Fig. 3)
Caution: The line voltages should be set within the limit.
Failure to do so may result in destruction of the IC's.

o To check the output voltage, measure them on the G-connector or the T-connector.
(See the cable block diagram, in this manual.)

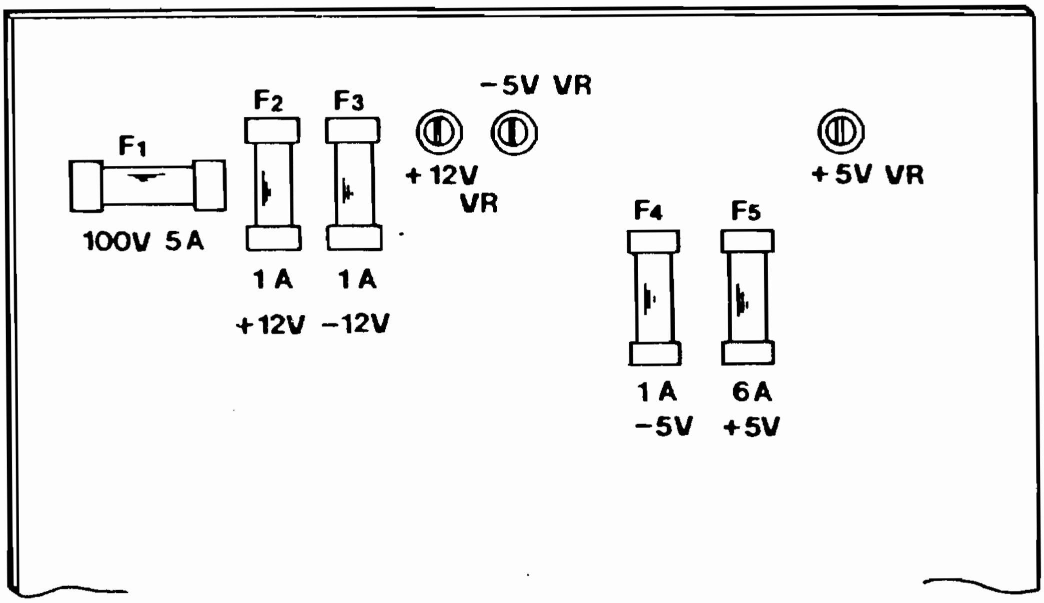


Fig. 3

o +5V VR ... Pot for adjusting +5V DC line voltage
(Adjustable range: +4.5V to +5.5V DC)
Set approx. +5V.

o -5V VR ... Pot for adjusting -5V DC line voltage
(Adjustable range: -5.5V to -4.5V DC.)
Set approx. -5V.
When the +5V line hes no load, this -5V voltage is not present on the line.

o +12V VR .. Pot for adjusting +12V DC line voltage
(Adjustable range: +10.8V to +13.2V DC)
Set approx. +12V.

7. Adjustments on Game PC Board (See Fig. 4 and Table 1,2)

o To decrease the sound, turn each pot to the direction as shown below.

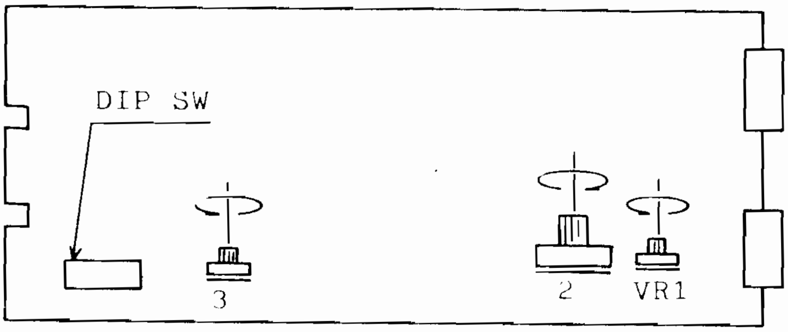


Fig. 4

* VR1 ... Pot for adjusting explosion sounds of beam gun
* VR2 ... Pot for adjusting total sounds
* VR3 ... Pot for adjusting the volume of voice

Setting for DIP Switch:

o SW1 ... Switch for setting the number of beam guns

"OFF" ... 3 beam guns "ON" ... 5 beam guns

o SW2 ... Remaining number of astronauts when a frame is changed to the next.

"OFF" ... No astronauts are added

"ON" .... 10 astronauts

o SW3 and SW4 ... Switches for the number of frames on witch 2 groups of UFO's appear at the same time

Number of Frames	SW 3	SW 4
2	OFF	OFF
3	ON	OFF
4	OFF	ON
5	ON	ON

Table 1

o SW5 ... Number of astronauts who are kidnapped (when SW2 is set at "OFF".)

Difficulty	SW 5
Easy	OFF
Difficult	ON

Table 2

o SW6 ... Switch for inversing the screen images

"ON" ... No inversion

"OFF" .. Inversion

o SW7 ... Switch for Changing the screen direction

"OFF" ... Normal Direction

o SW8 ... Switch for producing the voice in atract mode

"ON" ... Voice is heard

"OFF" .. No voice is heard

8. Adjustments on Color Video Monitor
(See Fig. 5)

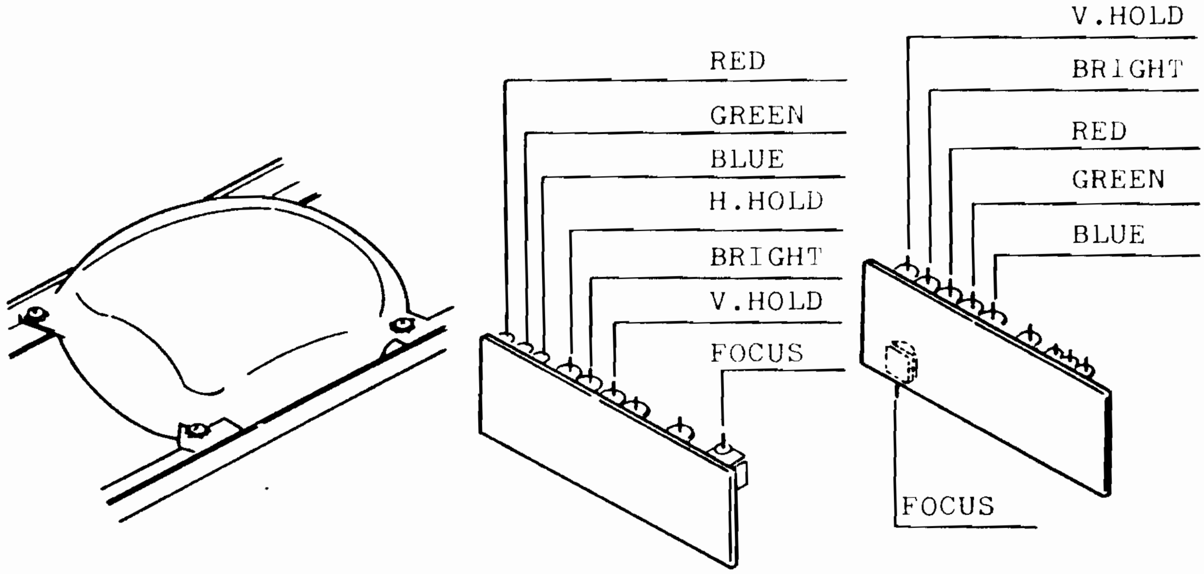


Fig. 5

The color video monitor is properly adjusted before shipping, huwever, if necessary, readjust as follows:

Caution: Carful adjustments are reguired for the H.Hold and the V.Hold adjustments.

o Horizontal Hold
  Adjust the H.HOLD control if the picture is warpped or broken into diagonal lines.
o Vertical Hold
  Adjust the V.HOLD control if the picture rolls vertically across the screen.
o Screen Brightness
  Adjust the BRIGHT control to keep the screen clear.
o FOCUS ... Screen Focus Control
o RED, GREEN, and BLUE ... Color Controls

Note: (1) Color aberration may occur depending on the setting condition of the machine. In that case, use a degaussing device. Keep magnet away from the screen, otherwise, it may result in color aberration.

4. Adjustments of Power Supply (See Fig. 6)

If the voltage of the power supply is low, the picture on the screen sometimes flickers. In that case, change the terminal of power transformer in the cabinet.

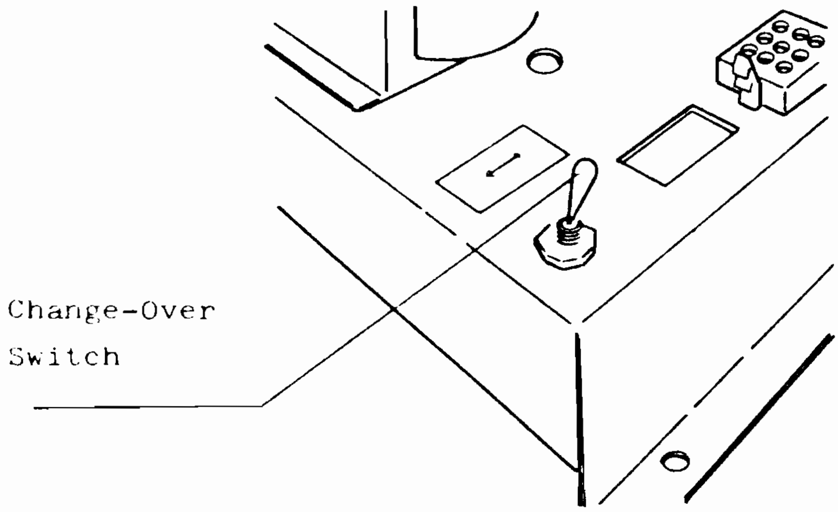


Fig. 6

10. Troubleshooting and Repair:

This Video game mainly consists of the following four units.

- o Monitor Unit
- o Game PC Board Unit
- o Control Unit
- o Power Supply Unit

These units are connected by wiring cable. If any of the units is defective, the game will not normally function.
In case of troubleshooting, therefore, the first thing you have to do is to predict what unit is defective. If you can predict that a unit might be defective, check the unit.
But if the unit was found to be not defective, check the other related unit(S).

(1) Checking of Each Unit

Use an ohm-meter (with the accuracy of the 2nd class or so) and the cable block diagram and make certain the numbers of the connectors and the wiring colors are correct. Next, check each unit according to the method of checking (mentioned in the item 2.)
There are two basic checking; continuity checking and Voltage checking.

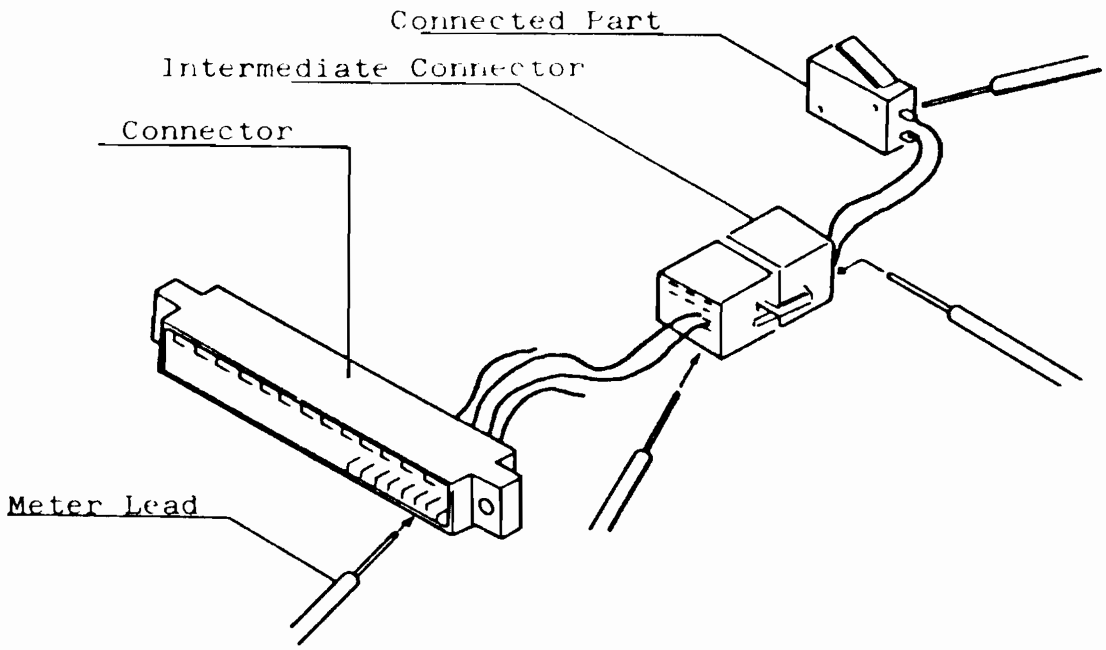
A) Continuity Checking

Each part and the PCB connector are connected by use of wiring cable and interediate connectors. Check whether the current flows correctly through these circuits according to the following procedures.

1 Set the resistor-range of the ohm-meter at "X10" or "X100".

2 Put the lead of the meter on the conductive part of the connector and put the other lead of the meter on the terminal of the part to be measured to see whether the pointer indicates at "0" ohm. If the pointer indecates at "0" ohm, the continuty is all right.

(CONTINUITY CHECKING)



B) Voltage Checking

1 Measurement of AC-Voltage

Set the ohm-meter at an AC-voltage range. In this case. Select the range slightly largen than the measured voltage. Put the meter lead on the conductive part of the connector to see whether each line voltage is correctly appears.

2 Measurement of DC-Voltage

Set the ohm-meter at a DC-voltage range. In this case, select the range slightly largen than the measured voltage. Put the minus lead (black lead) of the meter on the GND line (black wire, zero volt) and put the other lead (red lead) on the point to be measured. The voltage should be nearly the same value when measured at the beginning of the wiring or at the end of the wiring.

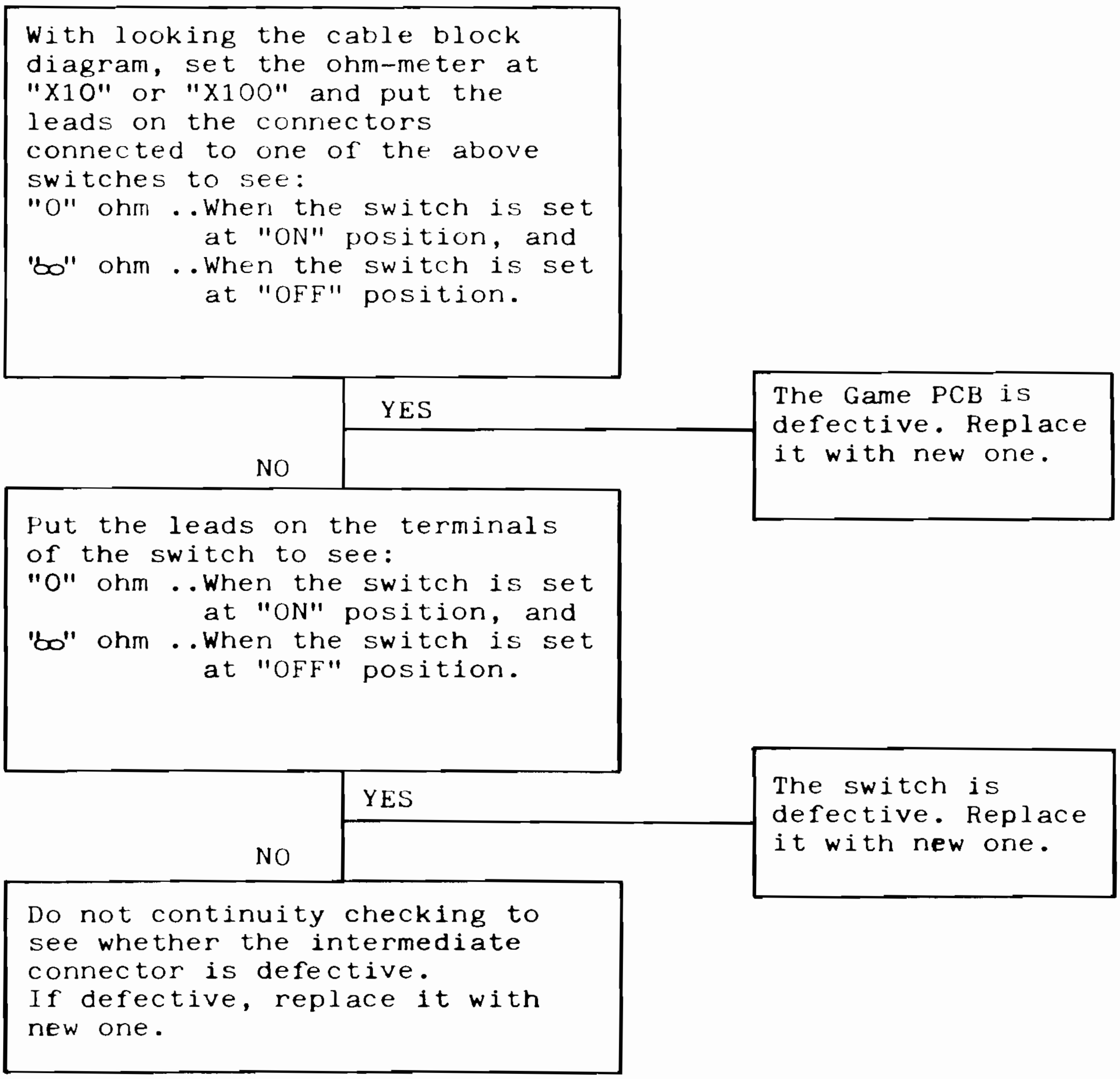
(2) Method of Checking

1 Checking on Control Unit and Coin Unit

Check whether the switches, the speakers, the coin counters, and the lockout coils correctly function. If these parts not normally function, check as follows:

A Check on Switches

The following switches are used in this game, the coin switch, the 1-player and the 2-player start switches, the control switch, and the service switch.



B Check on Speaker

Set the ohm-meter at "X1" and put the leads on the speaker terminals to see whether the pointer. indicates at 7 ohm with "click" sounds.

NO → The speaker is defective. Replace it with new one.

YES ↓

Do the continuity checking to see whether the wiring cable or the intermediete connector is defective.

NO → The Game PCB is or the sound PCB is defective. Replace it with new one.

YES ↓

Repair the defective parts.

C Check on Coin Meter and Lockout Coil

If the coin Meter or the Lockout Coil does not function, check as follows:

Coin Meter:

With the Counter PCB removed from the D-connector, short the Pin 10 GND (black wire) and the Pin 3 (brown-orange wire) of the connector to see whether the Coin Meter moves.

NO → The Coin Meter is defective. Replace it with new one.

YES ↓

The Game PCB or the Counter PCB is defective. Replace it with new one.

Lockout Coil: (Table type machine only.)

With the Counter PCB removed from the D-connector, short the Pin 10 GND (black wire) and the Pin 9 (black-white wire) of the connector to see whether the Lockout Coil moves.

NO

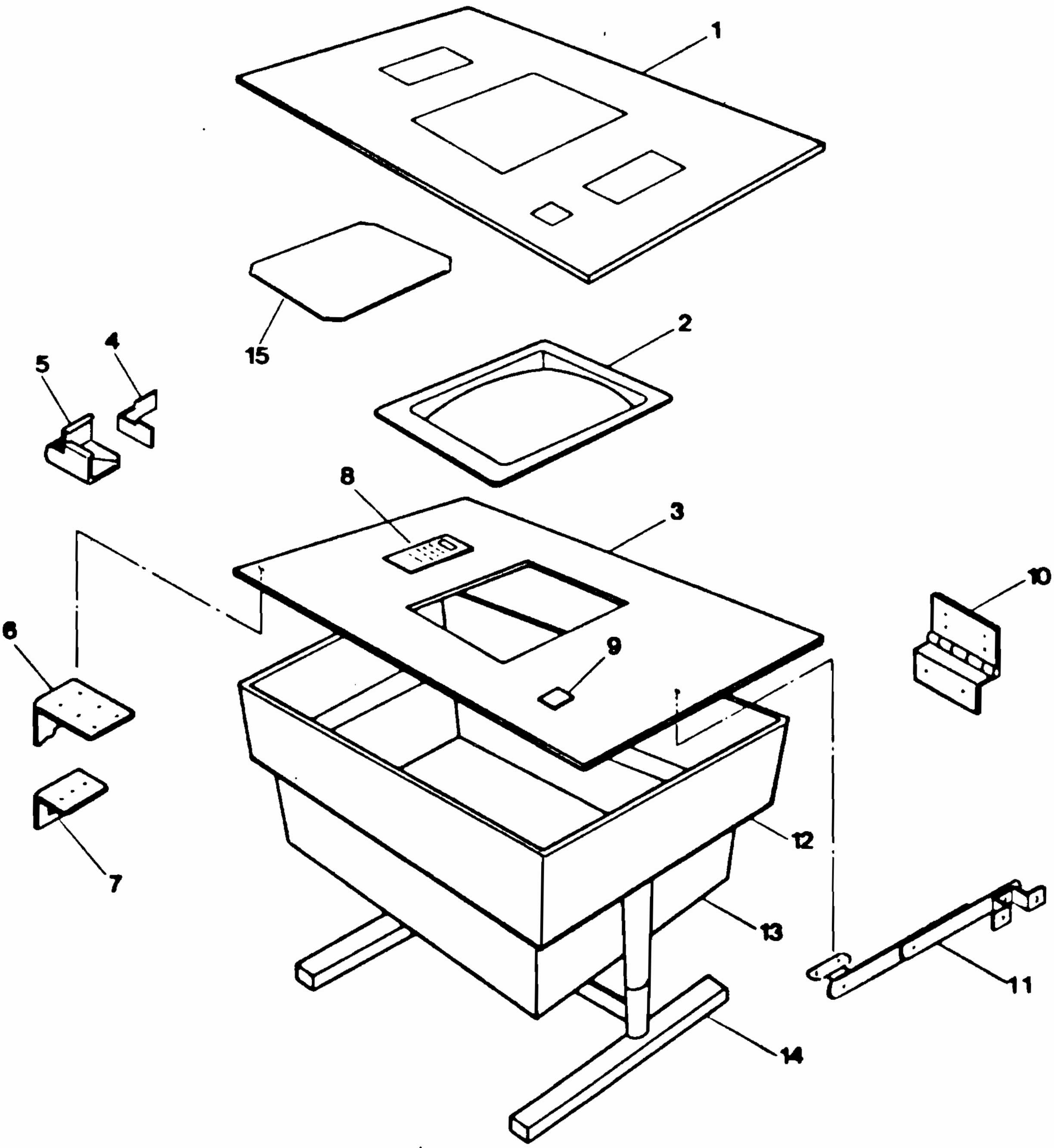
The Lockout Coil is defective.
Replace it with new one.

YES

The Game PCB or the Counter PCB is defective. Replace it with new one.

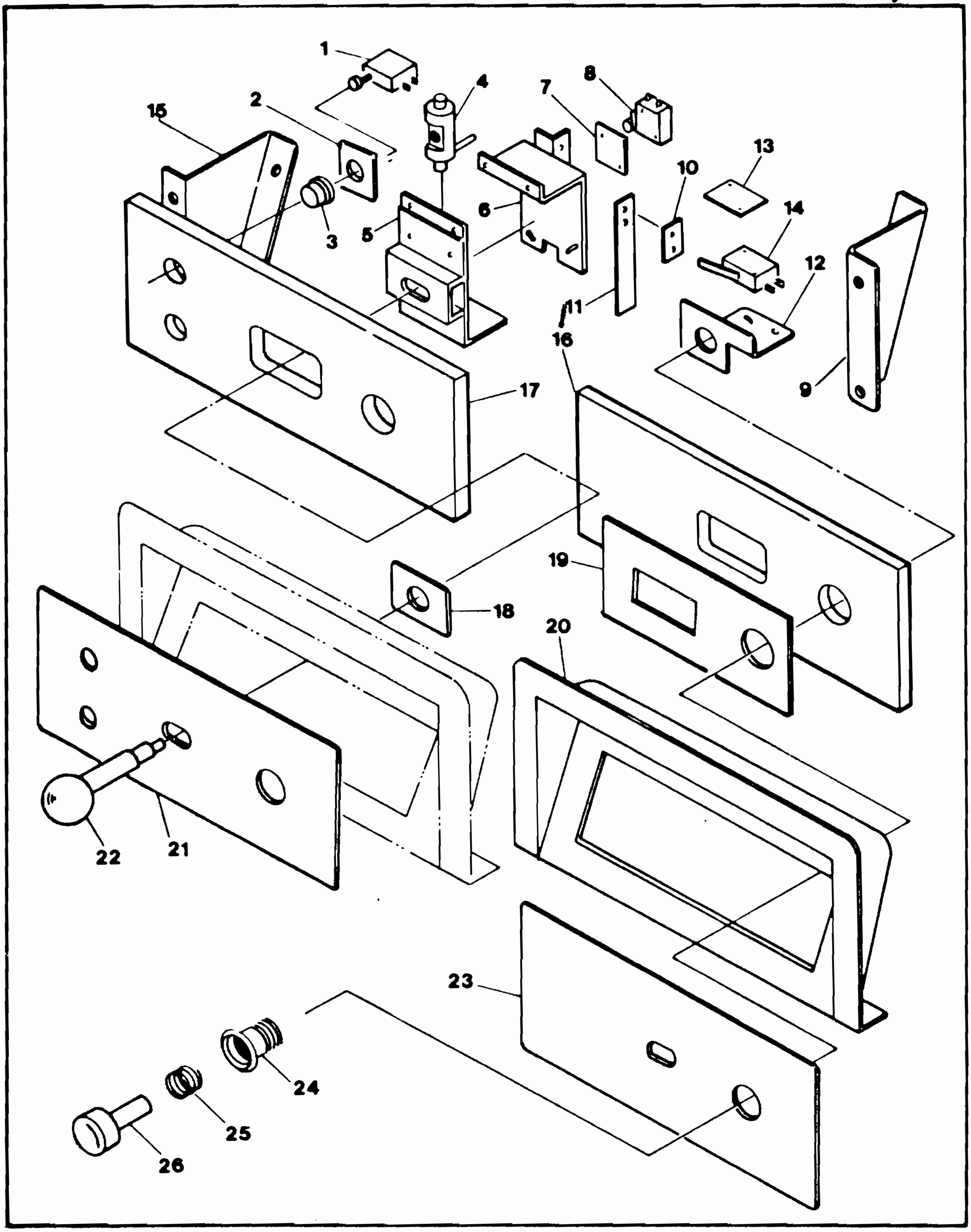
CABINET ASS'Y

SEE PAGE 21



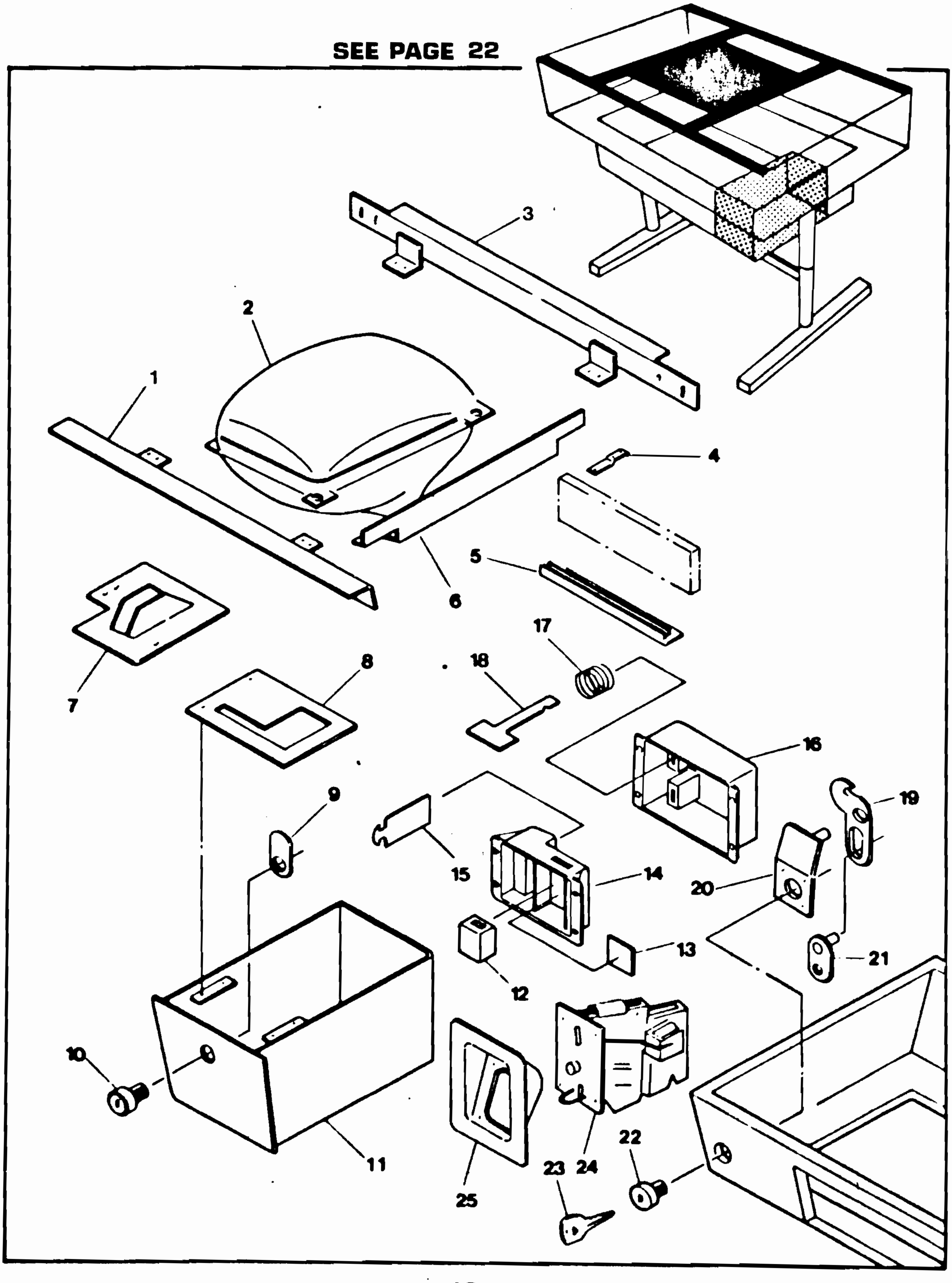
CONTROL PANEL ASS'Y

SEE PAGES 21, 22



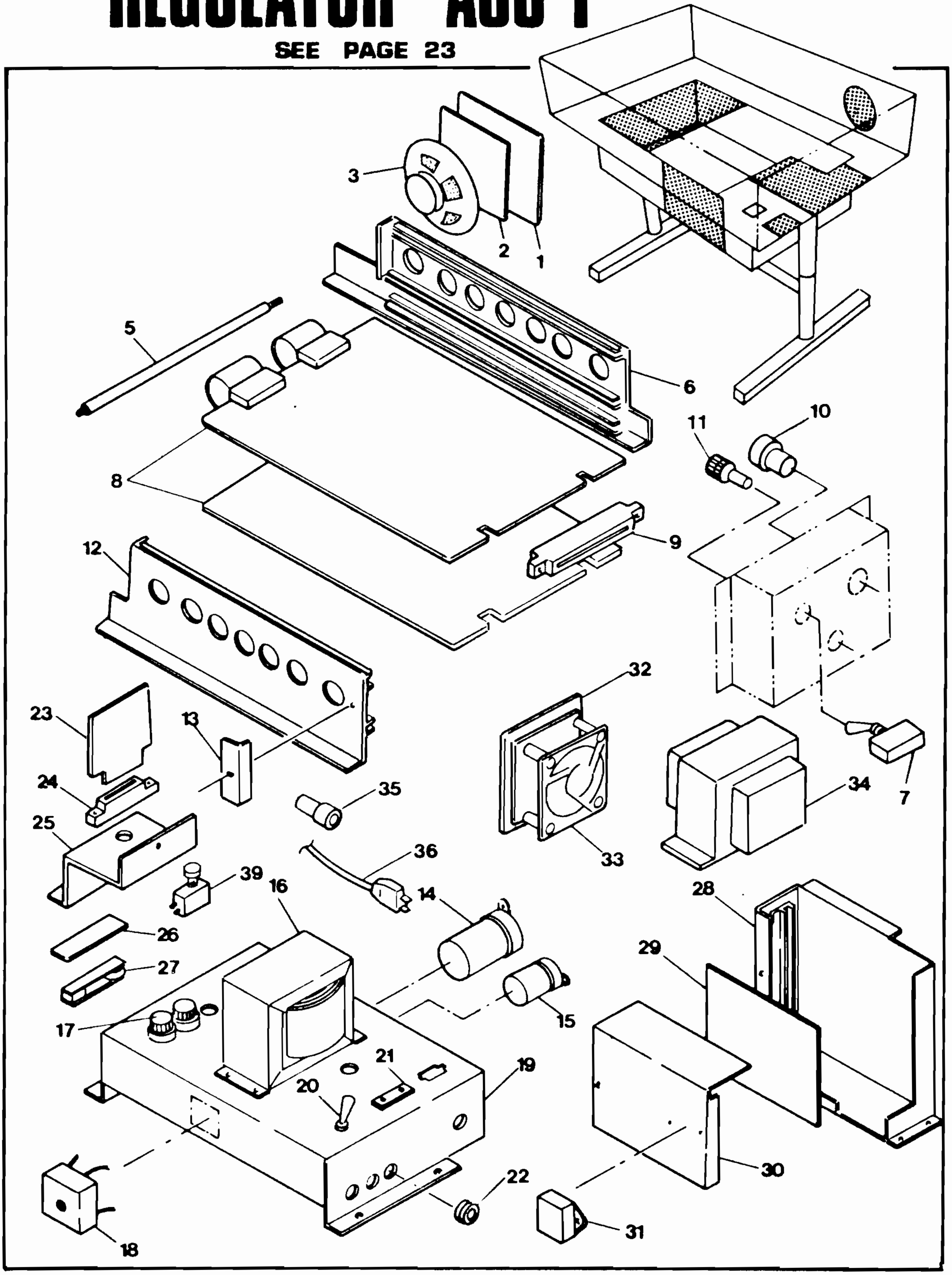
VIDEO AND CABINET ASS'Y

SEE PAGE 22



PRINTED BOARD AND REGULATOR ASS'Y

SEE PAGE 23



CABINET ASS'Y

Item	Part No.	Description
1	CV090003	Table Top Glass
2	AA019549	Video Mask
3	CV010002	Top Board
4	AA019545	Glass Bumper
5	AA013593	Corner Bracket
6	AA013605	Lock Bracket
7	AA013606	Hook
8	PR070010	Instruction Card ENG.
9	AA029522	Coin Sticker ENG.
10	TW060001	Hing Ass'y
11	AA016553	Hing Ass'y
12	CV010006	Table Box
13	CV030024	Bottom Box
14	AA016556	Table Leg
15	CV090021	Color Plate

CONTROL PANEL ASS'Y

Item	Part No.	Description
1	AA052511	Switch VAQ-4R
2	TE030008	Switch Plate
3	AA019535	Push Button
4	WT020001	Shaft
5	WT030004	Base Bracket
6	WT030005	M S Mounting Bracket
7	AA019504	Insulator Type-V
8	AA052532	Micro Switch AH71555
9	WT030015	Control Board Bracket (B)
10	WT030007	Washer
11	WT050001	Plate Spring
12	BP030002	Push Switch Bracket
13	AA019504	Insulator Type-V
14	AA052531	Micro Switch VL-11L
15	TW030014	Control Board Bracket (A)
16	TV010002	Control Board (B)
17	TV010001	Control Board (A)

18	WT090002	Mask Plate
19	CV090011	Spacer
20	AA019552	Control Panel
21	PR070016	Control Plate (1P) ENG.
22	CV020002	Lever
23	PR070017	Control Plate (2P) ENG.
24	AA019534	Push Button Housing Red
25	BP050001	Spring (A)
26	AA019533	Push Button Red

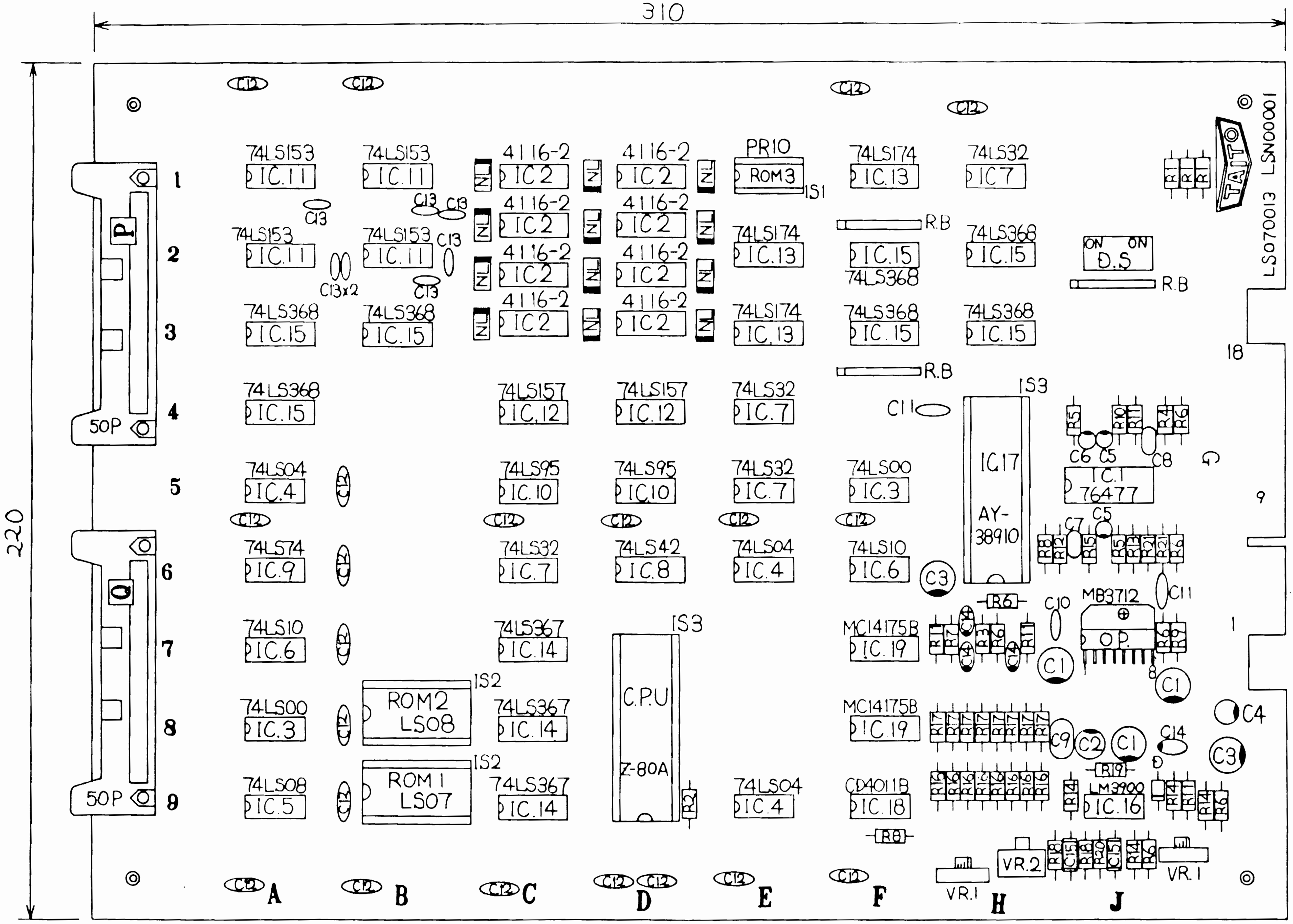
VIDEO AND CABINET ASS'Y

Item	Part No.	Description
1	CV030026	Support Bracket (C)
2	AAM10103	Video 14 inch clolr
3	CV030027	Support Bracket (D)
4	CV030028	Video Circuit Board Support
5	TV090009	Guide Rail
6	CV030025	Video Bracket
7	AA013520	Coin Chute (C)
8	CV030003	Guide Plate
9	AA013511	Lock Plate
10	AA016501	Lock & Key
11	CV030002	Cash Box
12	AA051717	Counter ME-5
13	AA018558	Packing
14	AA019559	Counter Box
15	AA013619	Contact Plate (B)
16	AA019558	Contact Plate Guide
17	WT050002	Spring
18	AA013618	Contact Plate (A)
19	AA013604	Lock Lever
20	AA013603	Lock Plate
21	AA013602	Lock Lever Pin
22	AA016559	Service Lock No.7900
23	AA016560	Service Key No.7900
24		Rejector
25	AA019551	Coin Entry Cover

PRINTED BOARD AND REGULATOR ASS'Y

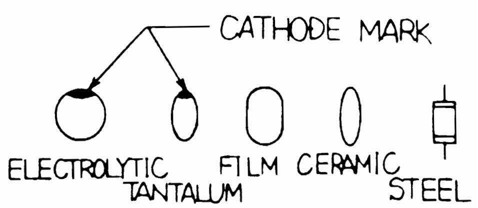
Item	Part No.	Description
1	WN030015	Punching Metal
2	WN090007	Net
3	AAT71001	Speaker 8 OHM 5W
4		
5	TU020001	Shaft
6	AA019547	P.C Board Guide (A)
7	AA052501	Toggle Switch S-301
8	LSK00006	Main PC Board Ass'y
9	AA055949	AMPLEAF Connector 18P
10	AA055784	Fuse Holder S-N2056
11	AA056508	Earth Terminal T-375
12	WT090008	P.C Board Guide (B)
13	CV030022	Stop Bracket
14	AAT41175	Capacitor 35LASN 4700
15	AAT41172	Capacitor 35LASN 1000
16	AA057575	Transformer
17	AA055700	Fuse Holder F4000
18	AAT14029	Rectifier S4VB
19	AA013610	Transformer Mounting Box
20	AA052535	Toggle Switch S-2A
21	AA055788	AC Socket Box-Type
22	AA018506	Grommet NG-79-E
23	AAM50011	Counter Drive P.C Board Ass'y
24	AA055720	Print Connector 10P
25	AA013607	Connector & Switch Bracket
26	TV090010	Insulator
27	AA068717	Tilt Switch
28	AA013613	Shield Box
29	AAM60009	Switching Regulator Ass'y
30	AA013614	Shield Cover
31	AAT61017	Noise Filter ZMB2206-02
32	AA018555	Gasket
33	AA058581	Fan WEJ-55B4
34	AA057582	Transformer
35	AA069568	Molde Cord Bush
36	AA062508	AC Cord

LTR	DESCRIPTION	DATE	APPROVED

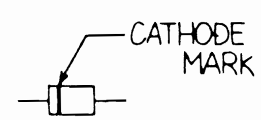


USING LANGUAGE	ADDRESS 9B	ADDRESS 9B ROM PARTS NO.	ADDRESS 8B	ADDRESS 8B ROM PARTS NO.
ENGLISH	LS07	LS090007	LS08	LS090008
SPANISH	LS09	LS090010	LS10	LS090011

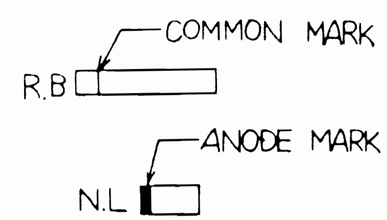
NOTE.5 ROM CONVERSION FOR FOREIGN LANGUAGE



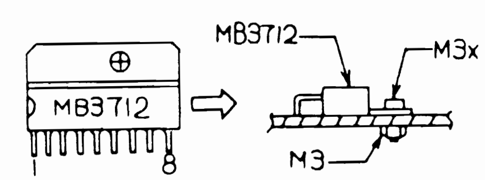
NOTE.1 CAP.



NOTE.2 DIODE



NOTE.3 RESISTOR BLOCK & NOISE LIMIT



NOTE.4 OP AMP. MB3712

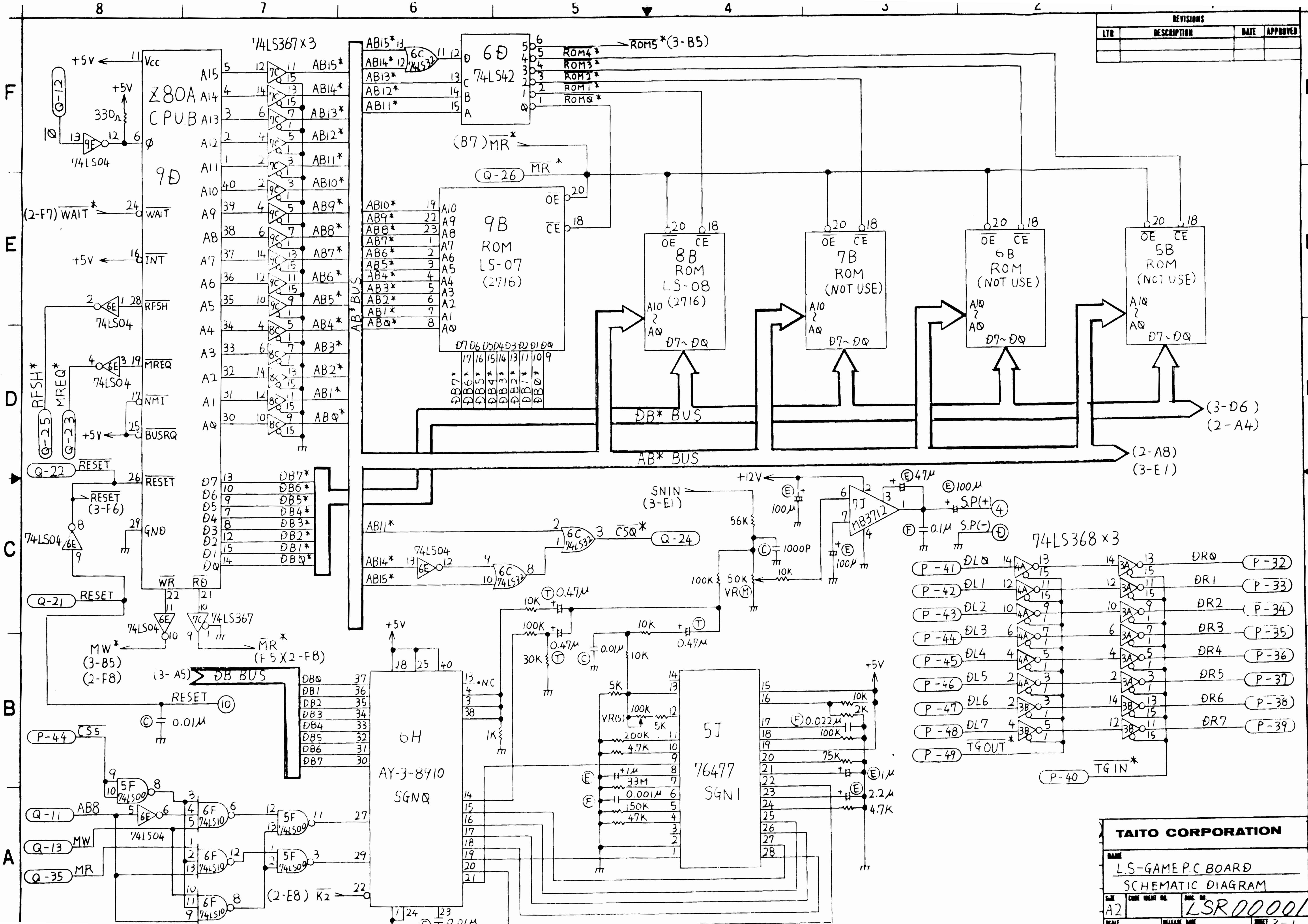
ITEM NO.	SYM	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	QTY REQD
76	N.L	AAT61019	NOISE LIMIT, CS90E-1A-3R300-R58	12
75	RB	55058	RESISTOR BLOCK, 2.2KOHM 8 ELMENTS	3
74	VR2	53047	VARIABLE RESISTOR, B 50K RV-16YP	1
73	VR1	53042	VARIABLE RESISTOR, B-100KOHM	2
72	R21	51974	RES., CARBON, 5KOHM 1/4W±5%	2
71	R20	51973	270KOHM 1/4W±1%	1
70	R19	51972	1.5M	1
69	R18	51971	1M	2
68	R17	51969	30K	8
67	R16	51968	15KOHM 1/4W±1%	8
66	R15	51849	3.3MOHM 1/4W±5%	1
65	R14	51837	1M	4
64	R13	51820	200K	1
63	R12	51817	150K	1
62	R11	51813	100K	4
61	R10	51810	75K	1
60	R9	51807	56K	1
59	R8	51805	47K	2
58	R7	51800	30K	1
57	R6	51789	10K	7
56	R5	51781	4.7K	2
55	R4	51772	2K	1
54	R3	51765	1K	1
53	R2	51753	330	1
52	R1	51749	RES., CARBON, 220OHM 1/4W±5%	3
51	C15	41688	CAP., STEEL, 120PF 50V	2
50	C14	41416	CAP., TANTALUM, SSG16-0R47F	4
49	C13	41318	CAP., CERAMIC, 100PF 50V	7
48	C12	41672	〃, 104 Z 50V	21
47	C11	41411	〃, 10000PF 50V	2
46	C10	41399	CAP., CERAMIC, 1000PF 50V	1
45	C9	41244	CAP., FILM, TDY-1H-104	1
44	C8	41240	〃, TDY-1H-223	1
43	C7	41232	CAP., FILM, TDY-1H-102	1
42	C6	41049	CAP., ELECTROLYTIC, 50VB-2.2	1
41	C5	41048	50VB-1	2
40	C4	41041	35VB-10	1
39	C3	41036	25VB-100	2
38	C2	41035	25VB-47	1
37	C1	AAT41022	CAP., ELECTROLYTIC, 16VB-100	3
36	ROM3	PR090010	P-ROM (7052), PR10	1
※ 35	ROM2	LS090008	〃 (2716), LS08	1
※ 34	ROM1	LS090007	P-ROM (2716), LS07	1
33	IC.19	AAT36104	C-MOS IC, MC14175	2
32	IC.18	36012	C-MOS IC, CD4011B	1
31	C.P.U	34008	C.P.U, Z-80A	1
30	IC.17	32165	SOUND IC, AY-38910	1
29	IC.16	31011	OP AMPLIFIER, LM3900	1
28	IC.15	33204	LS IC, 74LS368	7
27	IC.14	33203	74LS367 (or 7437)	3
26	IC.13	33127	74LS174	3
25	IC.12	33112	74LS157	2
24	IC.11	33108	74LS153	4
23	IC.10	33069	74LS95	2
22	IC.9	33051	74LS74	1
21	IC.8	33032	74LS42	1
20	IC.7	33027	74LS32 (or 7432)	4
19	IC.6	33011	74LS10	2
18	IC.5	33009	74LS08	1
17	IC.4	33005	74LS04	3
16	IC.3	33001	LS IC, 74LS00	2
15	IC.2	32168	DYNAMIC RAM, TMS4116-20	8
14	IC.1	AAT32141	TTL IC, 76477	1
13			NUT, M3	1
12			PAN HD SCREW, M3X6	1
11	OP	AAT31042	OP AMPLIFIER, MB3712	1
10	D	AAT12025	DIODE, IS1588	1
9	IS3	AA055812	I.C SOCKET, 40P	2
8	IS2	55787	〃, 24P	2
7	IS1	55786	I.C SOCKET, 16P	1
6	50P	55154	ANGLE PIN HEADER, PS-50PA	2
5	D.S	52566	DIP SWITCH, DSS-8	1
4	Q	17656	CONNECTOR STICKER, Q	1
3	P	AA017653	CONNECTOR STICKER, P	1
2				
1		LS070013	LS-GAME P.C BOARD	1

PARTS LIST

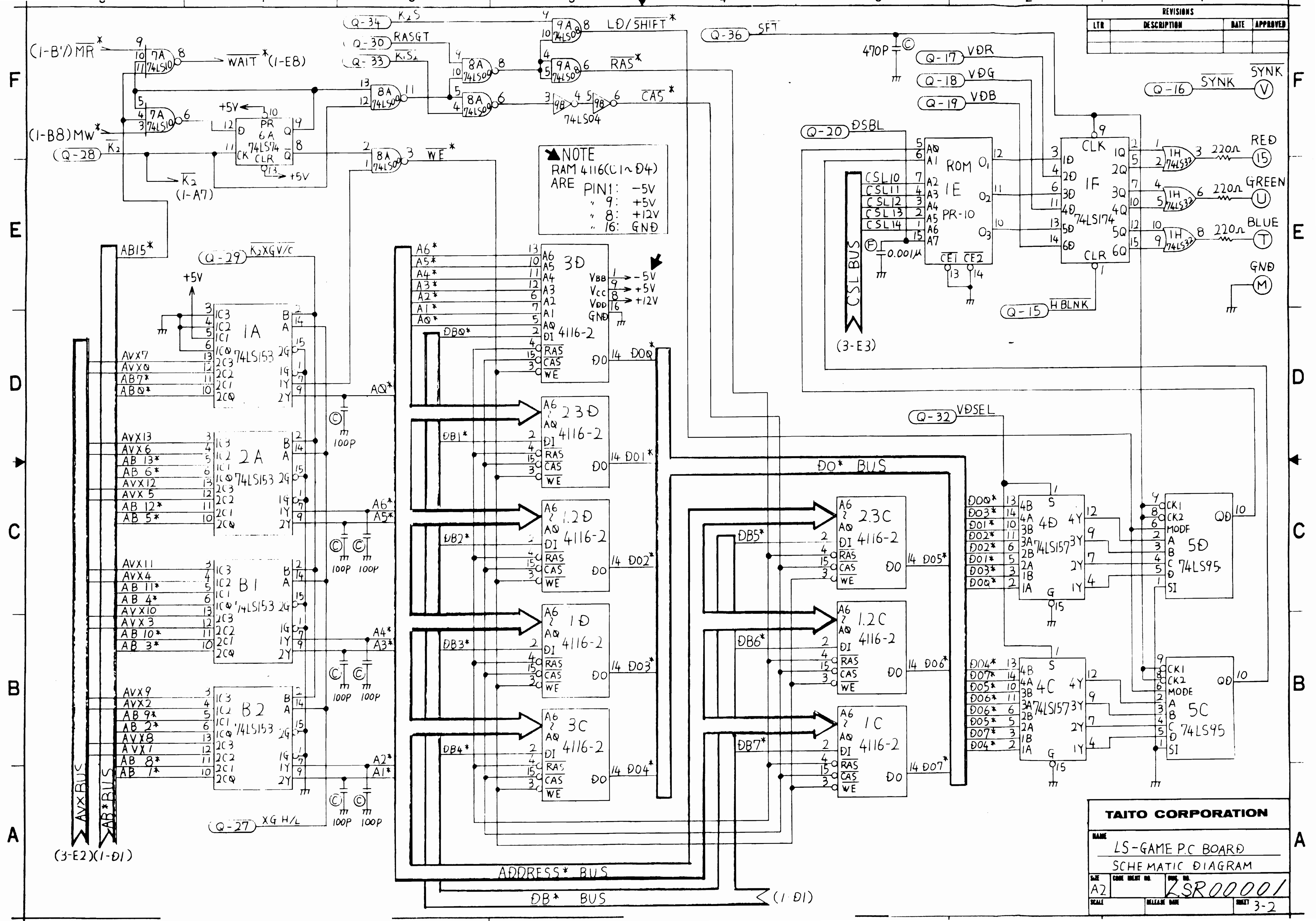
TAITO CORPORATION

LS-GAME PC BOARD Assy

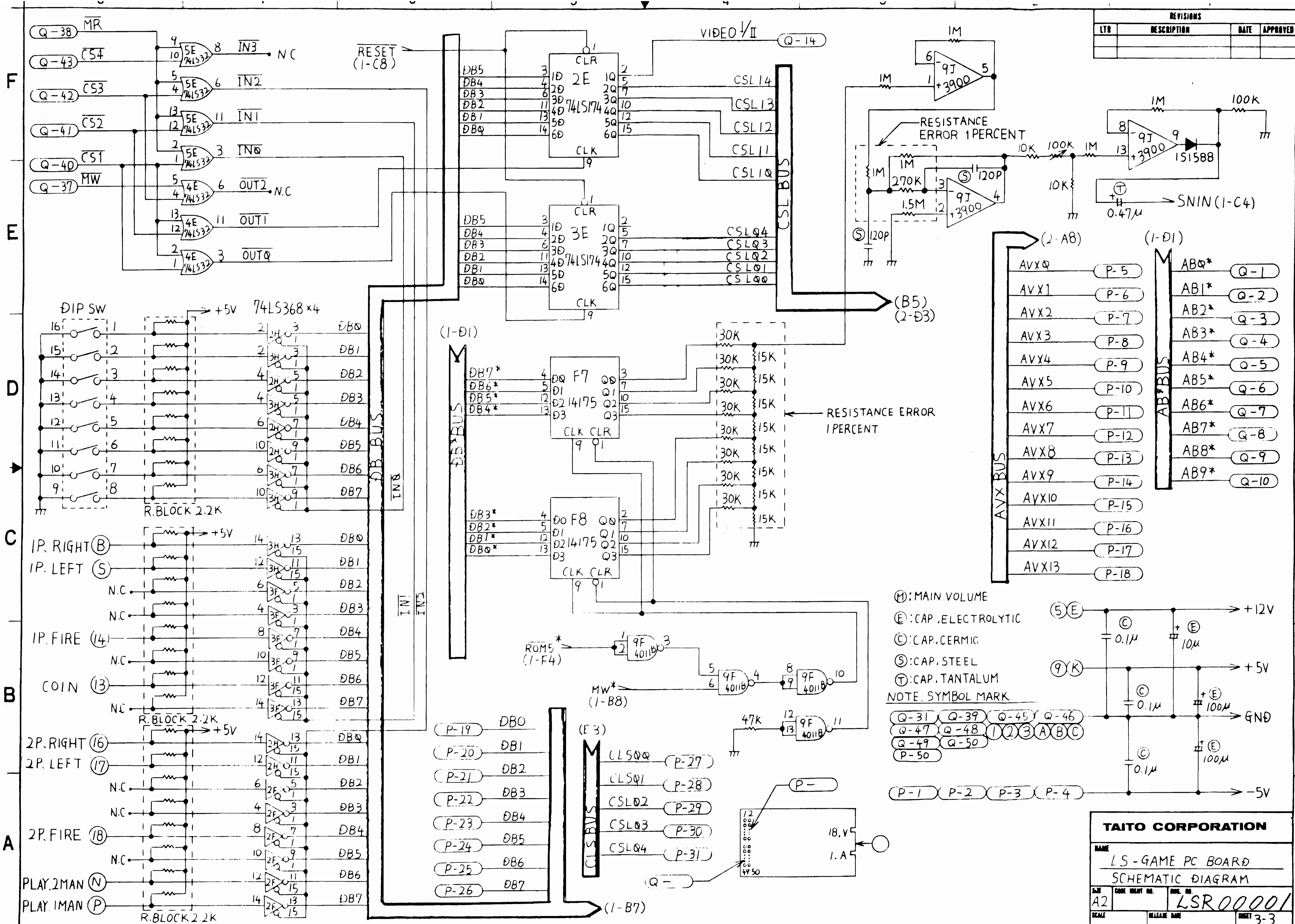
A1 LSN00001



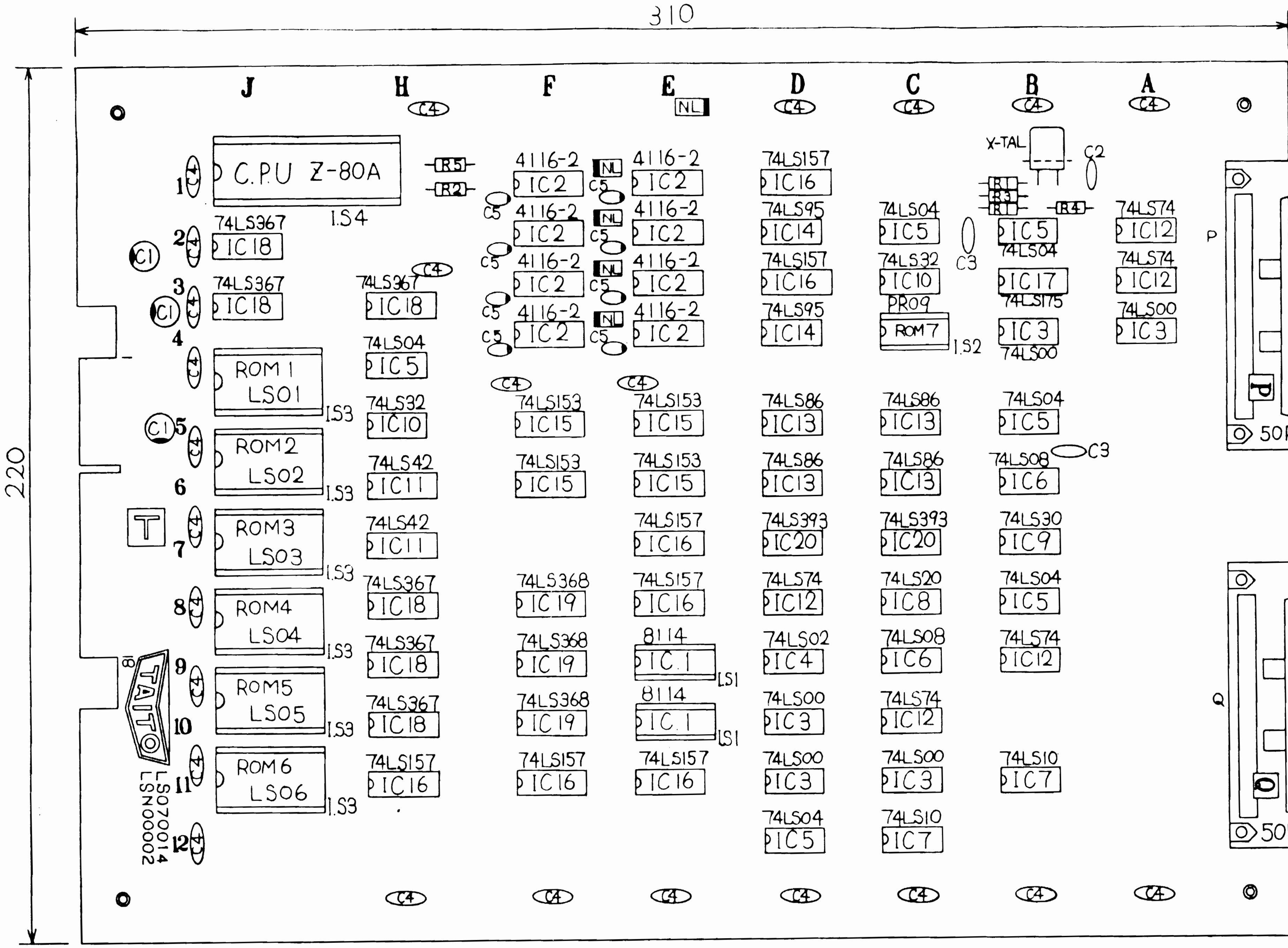
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
Z80A CPU.B
9D
74LS367×3
6D
74LS42
9B
ROM
LS-07
(2716)
8B
ROM
LS-08
(2716)
7B
ROM
(NOT USE)
6B
ROM
(NOT USE)
5B
ROM
(NOT USE)
DB* BUS
AB* BUS
(3-D6)
(2-A4)
(2-A8)
(3-E1)
ROM5*(3-B5)
ROM4*
ROM3*
ROM2*
ROM1*
ROMØ*
(B7) MR*
Q-26
MR*
(2-F7) WAIT*
RFSH*
MREQ*
Q-12
Q-25
Q-23
Q-22
RESET
RESET (3-F6)
Q-21
MW* (3-B5) (2-F8)
MR* (F5)(2-F8)
(3-A5) DB BUS
CSØ*
Q-24
SNIN (3-E1)
7J
MB3712
S.P(+)
S.P(-)
74LS368×3
P-41
P-42
P-43
P-44
P-45
P-46
P-47
P-48
P-49
P-32
P-33
P-34
P-35
P-36
P-37
P-38
P-39
P-40
TG OUT*
TG IN*
6H
AY-3-8910
SGNØ
5J
76477
SGN1
P-44
CS5
Q-11
AB8
Q-13
MW
Q-35
MR
(2-E8) K2
TAITO CORPORATION
LS-GAME P.C BOARD
SCHEMATIC DIAGRAM
A2
LSR00001
3-1



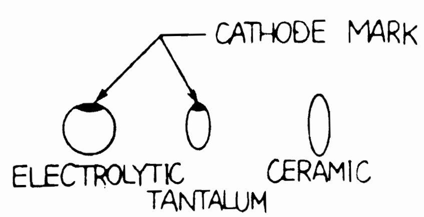
NOTE
RAM 4116(C1~D4)
ARE PIN1: -5V
" 9: +5V
" 8: +12V
" 16: GND
REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
TAITO CORPORATION
LS-GAME P.C BOARD
SCHEMATIC DIAGRAM
A2
ZSR00001
3-2


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
Q-38 MR
Q-43 CS4
Q-42 CS3
Q-41 CS2
Q-40 CS1
Q-37 MW
5E 74LS32
4E 74LS32
IN3 N.C
IN2
IN1
INØ
OUT2 N.C
OUT1
OUTØ
RESET (1-C8)
VIDEO I/II
Q-14
2E 74LS174
3E 74LS174
CLR
CLK
CSL14
CSL13
CSL12
CSL11
CSL1Ø
CSLØ4
CSLØ3
CSLØ2
CSLØ1
CSLØØ
CSL BUS
(B5) (2-D3)
9J +3900
RESISTANCE ERROR 1PERCENT
1S1588
SNIN(1-C4)
0.47μ
120P
DIP SW
74LS368×4
R.BLOCK 2.2K
+5V
DB BUS
DB BUS
F7 14175
F8 14175
RESISTANCE ERROR 1PERCENT
30K
15K
(2-A8)
AVX BUS
AVXØ P-5
AVX1 P-6
AVX2 P-7
AVX3 P-8
AVX4 P-9
AVX5 P-10
AVX6 P-11
AVX7 P-12
AVX8 P-13
AVX9 P-14
AVX10 P-15
AVX11 P-16
AVX12 P-17
AVX13 P-18
(1-D1)
AB BUS
ABØ* Q-1
AB1* Q-2
AB2* Q-3
AB3* Q-4
AB4* Q-5
AB5* Q-6
AB6* Q-7
AB7* Q-8
AB8* Q-9
AB9* Q-10
1P. RIGHT (B)
1P. LEFT (S)
1P. FIRE (14)
COIN (13)
2P. RIGHT (16)
2P. LEFT (17)
2P. FIRE (18)
PLAY. 2MAN (N)
PLAY. 1MAN (P)
N.C
ROM5* (1-F4)
MW* (1-B8)
9F 4011B
47K
(M): MAIN VOLUME
(E): CAP. ELECTROLYTIC
(C): CAP. CERMIC
(S): CAP. STEEL
(T): CAP. TANTALUM
NOTE. SYMBOL MARK
Q-31 Q-39 Q-45 Q-46
Q-47 Q-48 (1)(2)(3)(A)(B)(C)
Q-49 Q-50
P-50
(5)(E) +12V
(9)(K) +5V
GND
P-1 P-2 P-3 P-4 -5V
0.1μ
10μ
100μ
P-19 DBØ
P-20 DB1
P-21 DB2
P-22 DB3
P-23 DB4
P-24 DB5
P-25 DB6
P-26 DB7
(1-B7)
(E3)
CLS BUS
CLSØØ P-27
CLSØ1 P-28
CLSØ2 P-29
CLSØ3 P-30
CLSØ4 P-31
P-
Q-
18. V
1. A
TAITO CORPORATION
LS-GAME PC BOARD
SCHEMATIC DIAGRAM
A2
LSR00001
3-3

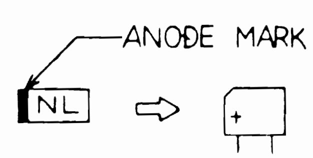
LTR	DESCRIPTION	DATE	APPROVED



USING LANGUAGE	ADDRESS NO.	ROM NO.	ROM PARTS NO.
ENGLISH	9,10J	LS05	LS0 90005
SPANISH	9,10J	LS11	LS090012



NOTE.1 CAP.



NOTE.2 NOISE LIMIT

AS TO IC 74LS30, 74LS32
74LS367, LS-TYPE IC'S ARE
USED, BUT THEY CAN BE REPLACED
WITH THE STANDARD-TYPE IC'S.

NOTE.3 IC 74LS30, 74LS32, 74LS367

※ MARK
ROM CONVERSION
NOTE4 FOR FOREIGN LANGUAGES

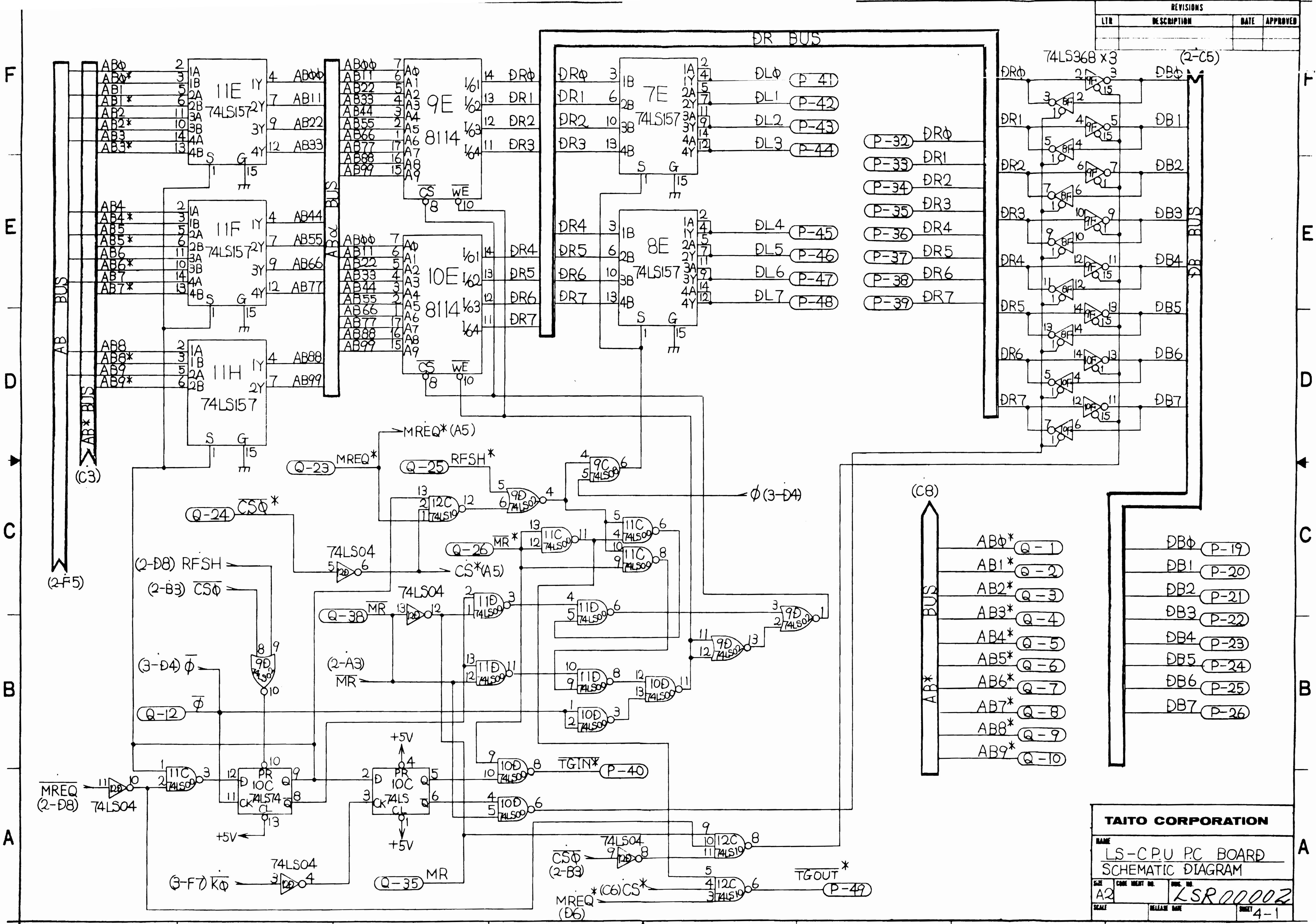
PARTS LIST

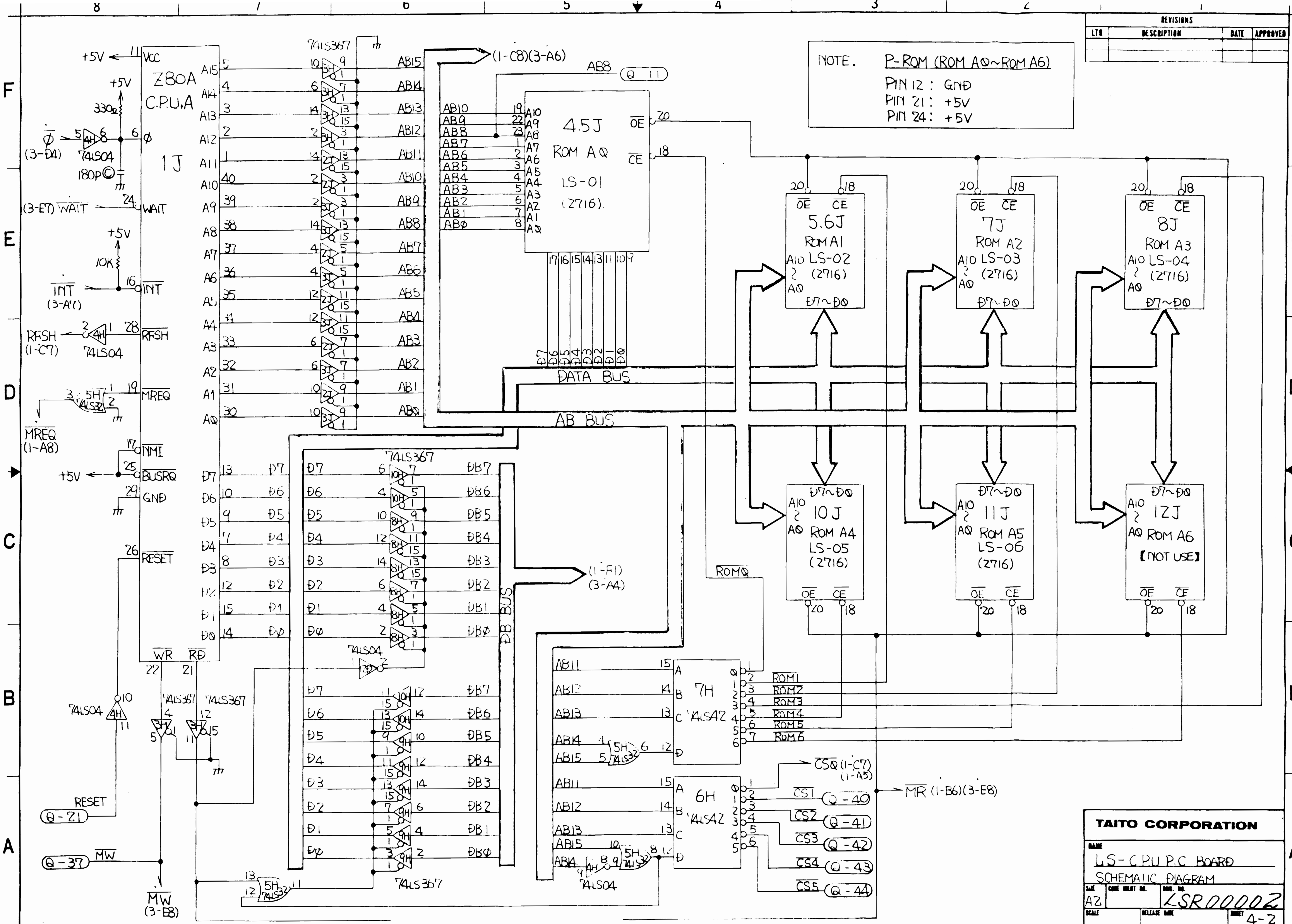
ITEM NO.	SYM	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	QTY
76				
75				
74				
73				
72				
71				
70				
69				
68				
67				
66				
65				
64				
63				
62				
61				
60				
59				
58				
57				
56				
55				
54				
53				
52				
51				
50				
49	NL	AAT61019	NOISE LIMIT, CS90E-1A-3R300-R58	5
48	R5	51789	RES. CARBON, 10KOHM 1/4W±5%	1
47	R4	51771	1.8K	1
46	R3	51759	560	1
45	R2	51753	330	1
44	R1	51749	RES. CARBON, 220OHM 1/4W±5%	2
43	C5	4436	CAP. TANTALUM, 5SG35-1F	8
42	C4	4672	CAP. CERAMIC, 104Z 50V	25
41	C3	4334	470PF 50V	2
40	C2	4305	CAP. CERAMIC, 30PF 50V	1
39	C1	AAT41041	CAP. ELECTROLYTIC, 35VB-10	3
38	ROM7	PRO90009	P-ROM (7052), PRO9	1
37	ROM6	LS090006	(2716), LS06	1
※ 36	ROM5	90005	LS05	1
35	ROM4	90004	LS04	1
34	ROM3	90003	LS03	1
33	ROM2	90002	LS02	1
32	ROM1	LS090001	P-ROM (2716), LS01	1
31	CPU	AAT34008	C.P.U, Z-80A	1
30	IC20	33220	LS IC, 74LS393	2
29	IC19	33204	74LS368	3
28	IC18	33203	74LS367 (or 74367)	6
27	IC17	33128	74LS175	1
26	IC16	33112	(FUJITSU) 74LS157	7
25	IC15	33108	74LS153	4
24	IC14	33069	74LS95	2
23	IC13	33062	74LS86	4
22	IC12	33051	74LS74	5
21	IC11	33032	74LS42	2
20	IC10	33027	74LS32 (or 7432)	2
19	IC9	33026	74LS30 (or 7430)	1
18	IC8	33019	74LS20	1
17	IC7	33011	74LS10	2
16	IC6	33009	74LS08	2
15	IC5	33005	74LS04	6
14	IC4	33003	74LS02	1
13	IC3	33001	LS IC, 74LS00	5
12	IC2	32168	DYNAMIC RAM, TMS4116-20	8
11	IC1	AAT32156	STATIC RAM, MB8114N	2
10	X-TAL	AA069599	X-TAL, 10.000MHz	1
9	IS4	55812	IC SOCKET, 40P	1
8	IS3	55787	24P	6
7	IS2	55786	16P	1
6	IS1	55103	IC SOCKET, 18P	2
5	50P	55154	ANGLE PIN HEADER, PS-50PA	2
4	Q	17656	CONNECTOR STICKER, Q	1
3	P	AA017653	CONNECTOR STICKER, P	1
2				
1		LS070014	LS-CPU P.C BOARD	1

TAITO CORPORATION

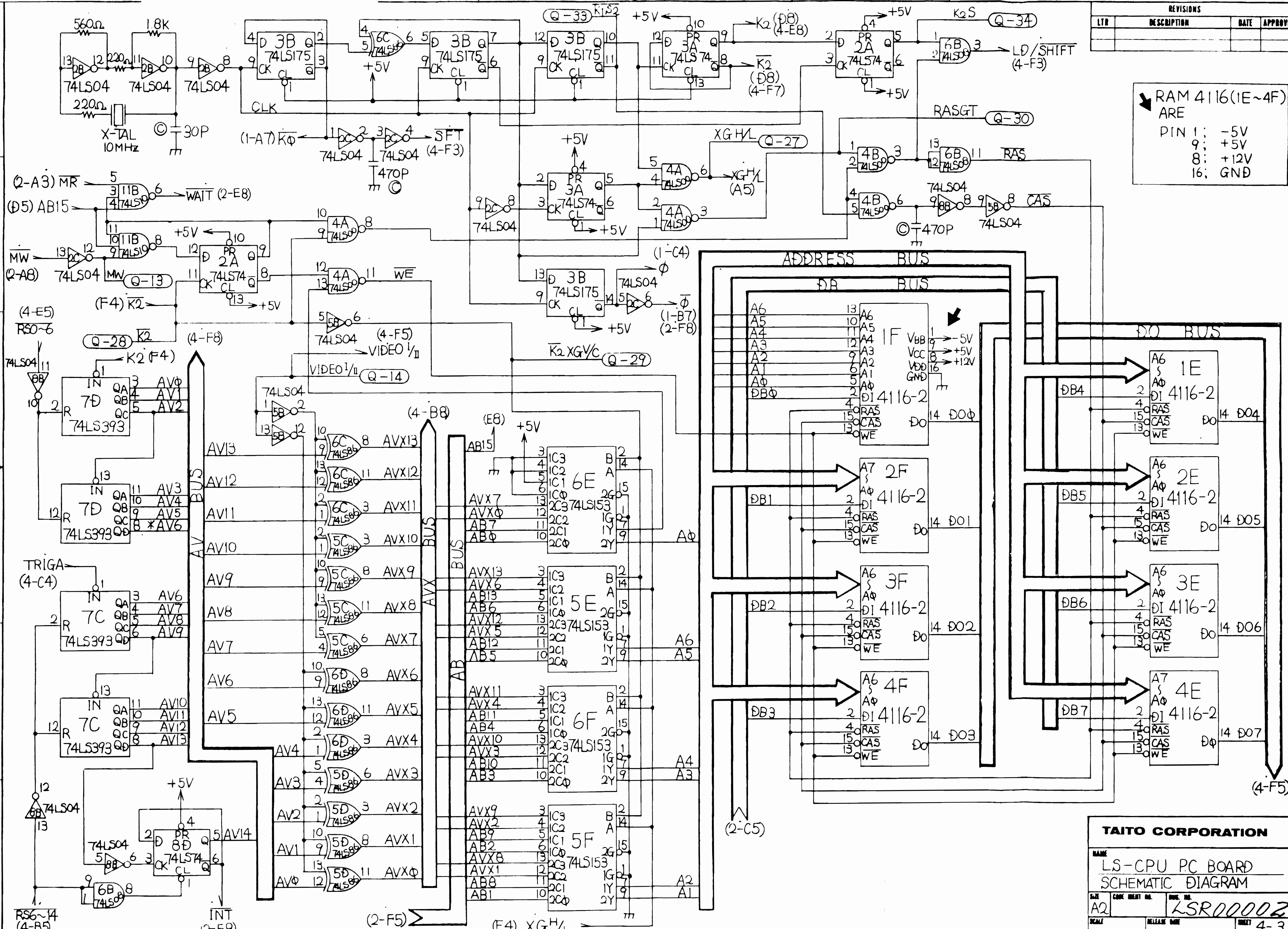
LS-CPU PC BOARD Assy

A1 LS-N0000Z


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
DR BUS
AB BUS
AB* BUS
ABφ BUS
DB BUS
74LS368 x3
11E 74LS157
11F 74LS157
11H 74LS157
9E 8114
10E 8114
7E 74LS157
8E 74LS157
MREQ*(A5)
CS*(A5)
φ(3-D4)
TGIN*
TGOUT*
TAITO CORPORATION
LS-C.P.U P.C BOARD
SCHEMATIC DIAGRAM
A2
LSR00002
4-1



REVISIONS
LTR | DESCRIPTION | DATE | APPROVED
NOTE. P-ROM (ROM AØ~ROM A6)
PIN 12 : GND
PIN 21 : +5V
PIN 24 : +5V
Z80A C.P.U.A 1J
74LS367
74LS04
74LS32
74LS42
4.5J ROM AØ LS-01 (2716)
5.6J ROM A1 LS-02 (2716)
7J ROM A2 LS-03 (2716)
8J ROM A3 LS-04 (2716)
10J ROM A4 LS-05 (2716)
11J ROM A5 LS-06 (2716)
12J ROM A6 [NOT USE]
DATA BUS
AB BUS
DB BUS
ROMØ
ROM1
ROM2
ROM3
ROM4
ROM5
ROM6
CSØ (1-C7) (1-A5)
CS1 (Q-40)
CS2 (Q-41)
CS3 (Q-42)
CS4 (Q-43)
CS5 (Q-44)
MR (1-B6)(3-E8)
RESET (Q-21)
MW (Q-37)
MW (3-E8)
(1-C8)(3-A6)
AB8 (Q 11)
(1-F1) (3-A4)
(3-D4)
(3-E7) WAIT
INT (3-A7)
RFSH (1-C7)
MREQ (1-A8)
+5V
330Ω
10K
180P
TAITO CORPORATION
LS-CPU P.C BOARD
SCHEMATIC DIAGRAM
A2
LSR00002
4-2



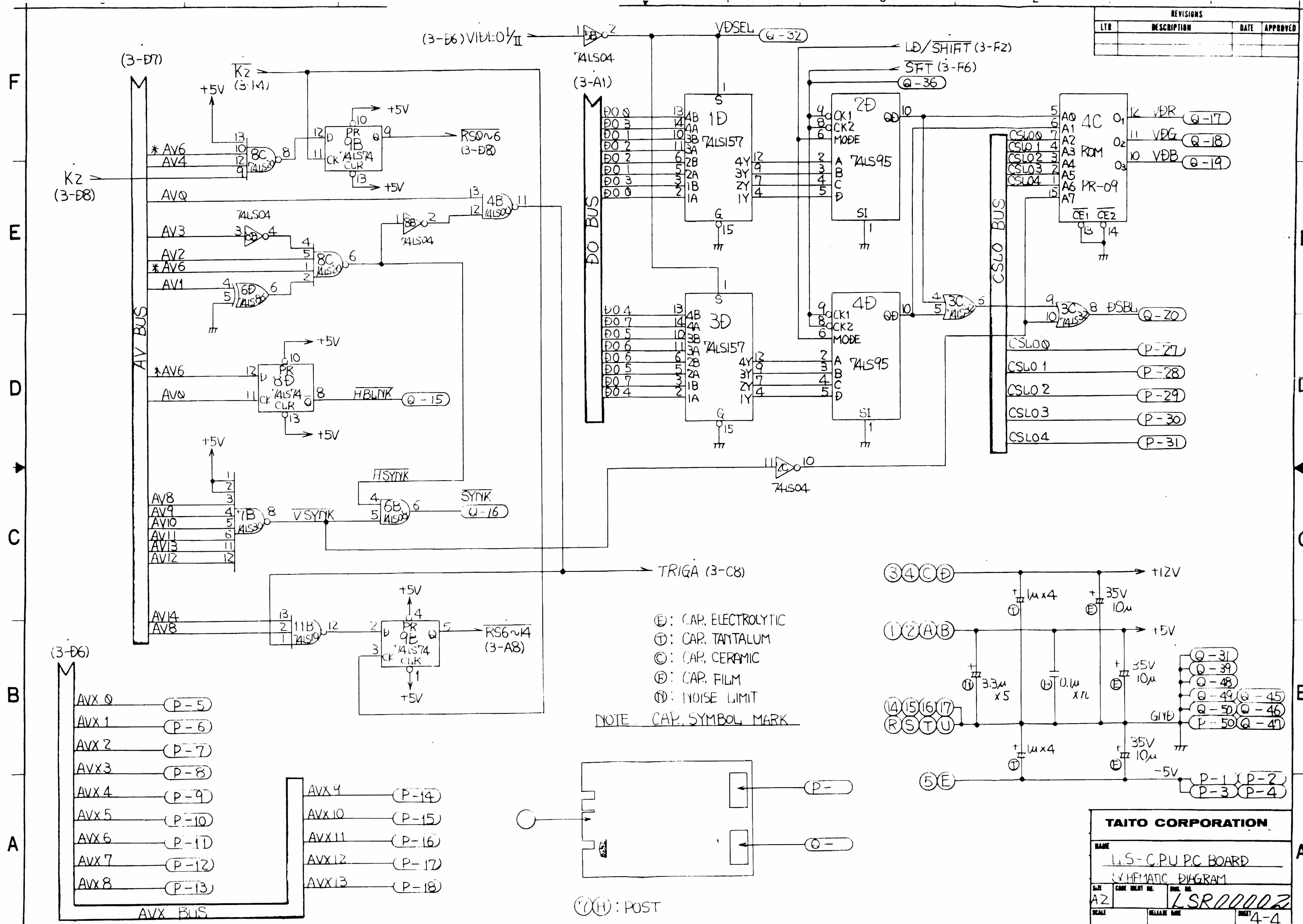
LTR	DESCRIPTION	DATE	APPROVED

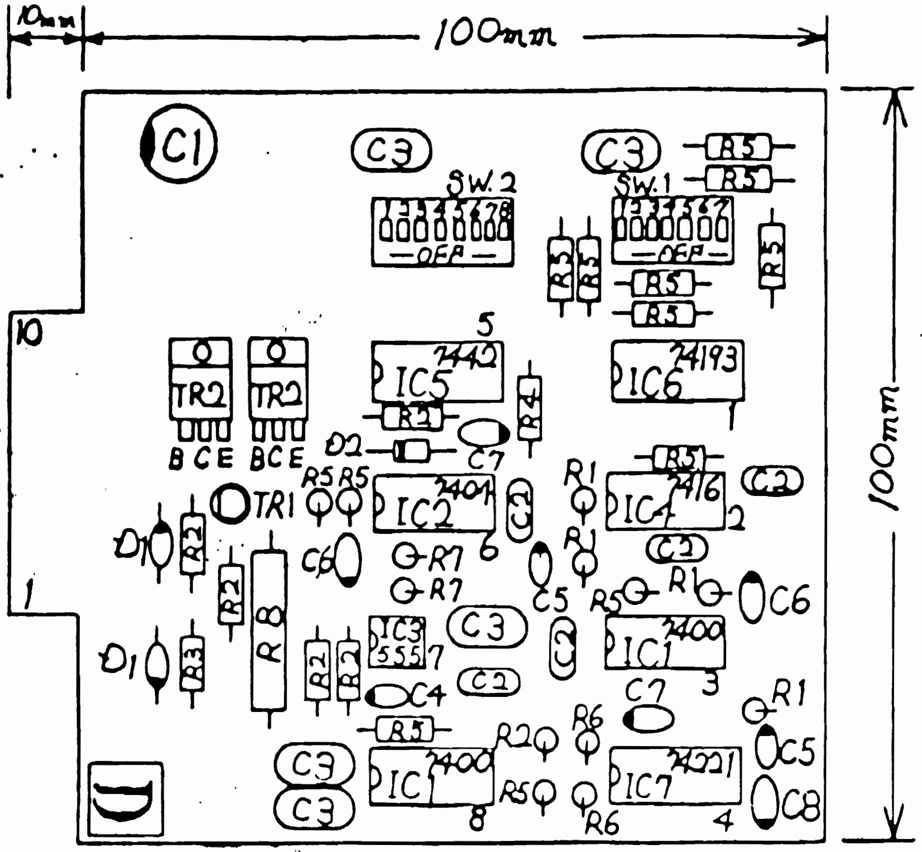
TAITO CORPORATION

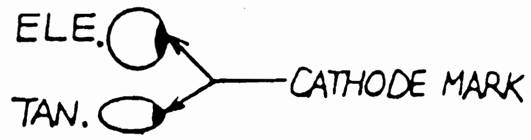
NAME: LS-CPU PC BOARD SCHEMATIC DIAGRAM

SIZE	CODE IDENT NO.	DWG. NO.
A2		LSR00002

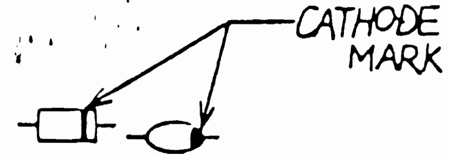
SCALE | RELEASE DATE | SHEET 4-3


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
(3-D6) VIDEO I/II
74LS04
VDSEL
Q-32
LD/SHIFT (3-F2)
SFT (3-F6)
Q-36
(3-D7)
KZ (3-14)
+5V
RS0~6 (3-D8)
KZ (3-D8)
AV6
AV4
AVQ
AV3
AV2
AV6
AV1
AV BUS
8C
9B
74LS74
4B
8B
6D
8D
HBLNK
Q-15
HSYNK
SYNK
Q-16
VSYNK
6B
7B
AV8
AV9
AV10
AV11
AV13
AV12
AV14
11B
9E
RS6~14 (3-A8)
TRIGA (3-C8)
(3-A1)
DO BUS
1D
3D
74LS157
2D
4D
74LS95
MODE
4C ROM PR-09
VDR
Q-17
VDG
Q-18
VDB
Q-19
CSLO BUS
3C
DSBL
Q-20
CSLO0
P-27
CSLO1
P-28
CSLO2
P-29
CSLO3
P-30
CSLO4
P-31
4C
74LS04
(3-D6)
AVX 0
P-5
AVX 1
P-6
AVX 2
P-7
AVX3
P-8
AVX 4
P-9
AVX 5
P-10
AVX 6
P-11
AVX 7
P-12
AVX 8
P-13
AVX 9
P-14
AVX 10
P-15
AVX 11
P-16
AVX 12
P-17
AVX 13
P-18
AVX BUS
E: CAP. ELECTROLYTIC
T: CAP. TANTALUM
C: CAP. CERAMIC
F: CAP. FILM
N: NOISE LIMIT
NOTE CAP. SYMBOL MARK
P-
Q-
(V)(H): POST
(3)(4)(C)(D)
+12V
1μ x4
35V 10μ
(1)(2)(A)(B)
+5V
3.3μ x5
0.1μ x n
(14)(15)(16)(17)
(R)(S)(T)(U)
GND
Q-31
Q-39
Q-48
Q-49
Q-45
Q-50
Q-46
P-50
Q-47
(5)(E)
-5V
P-1
P-2
P-3
P-4
TAITO CORPORATION
L.S-C.P.U P.C BOARD
SCHEMATIC DIAGRAM
A2
LSR00002
4-4





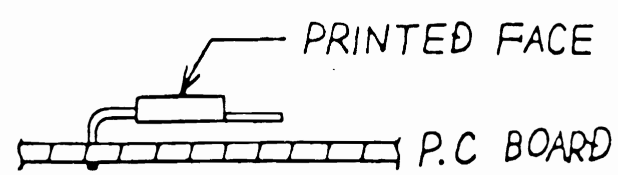
NOTE.1 CAP. TANTALUM & ELECTROLYTIC



NOTE.2 DIODE



NOTE.3 TRANSISTOR(2SC458)



NOTE.4 TRANSISTOR(2SC1061)

NOTE.5 THE RELATION BETWEEN COIN AND CREDIT

	SW1							SW2							
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8
1COIN 1PLAY	ON	ON	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF
2COIN 1PLAY	〃	〃	〃	〃	〃	〃	〃	OFF	ON	OFF	〃	〃	〃	〃	〃
3COIN 1PLAY	〃	〃	〃	〃	〃	〃	〃	〃	OFF	ON	〃	〃	〃	〃	〃
4COIN 1PLAY	〃	〃	〃	〃	〃	〃	〃	〃	OFF	OFF	ON	〃	〃	〃	〃
1COIN 2PLAY	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
1COIN 3PLAY	OFF	ON	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
1COIN 4PLAY	ON	ON	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃

REVISIONS

LTR	DESCRIPTION	DATE	APPROVED

ITEM NO	SYM	PART NO IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	QTY REQD
31	R8	AAT55033	WINDING RESISTOR, 6OHM 2W±10%	1
30	R7	51831	RES., CARBON, 560KOHM 1/4W±5%	2
29	R6	51803	, 39K	2
28	R5	51789	, 10K	13
27	R4	51781	, 4.7K	1
26	R3	51777	, 3.3K	1
25	R2	51765	, 1K	6
24	R1	51741	RES., CARBON, 100OHM 1/4W±5%	4
23	C8	41438	CAP., TANTALUM, SSG35-3R3F	1
22	C7	41421	〃 , SSG16-4R7F	2
21	C6	41419	〃 , SSG16-2R2F	2
20	C5	41418	〃 , SSG16-1F	2
19	C4	41414	CAP., TANTALUM, SSG16-0R22F	1
18	C3	41244	CAP., FILM, TDY-1H-104	5
17	C2	41238	CAP., FILM, TDY-1H-103	5
16	C1	41021	CAP., ELECTROLYTIC, 16VB47μ	1
15	IC.7	32077	TTL IC, 74221	1
14	IC.6	32044	, 74193	1
13	IC.5	32039	, 7442	1
12	IC.4	32033	, 7416	1
11	IC.3	32019	, NE555V	1
10	IC.2	32003	, 7404	1
9	IC.1	32001	TTL IC, 7400	2
8	D2	12025	DIODE, 1S1588	1
7	D1	12002	DIODE, V03C	2
6	TR2	11030	TRANSISTOR, 2SC1061-B	2
5	TR.1	AAT11005	TRANSISTOR, 2SC458-C	1
4	SW.2	AAO52566	DIP SWITCH, DSS-8	1
3	SW.1	〃 52560	DIP SWITCH, DSS-7	1
2	D	〃 17623	CONNECTOR STICKER, D	1
1		AAO17766D	CREDIT P.C BOARD	1

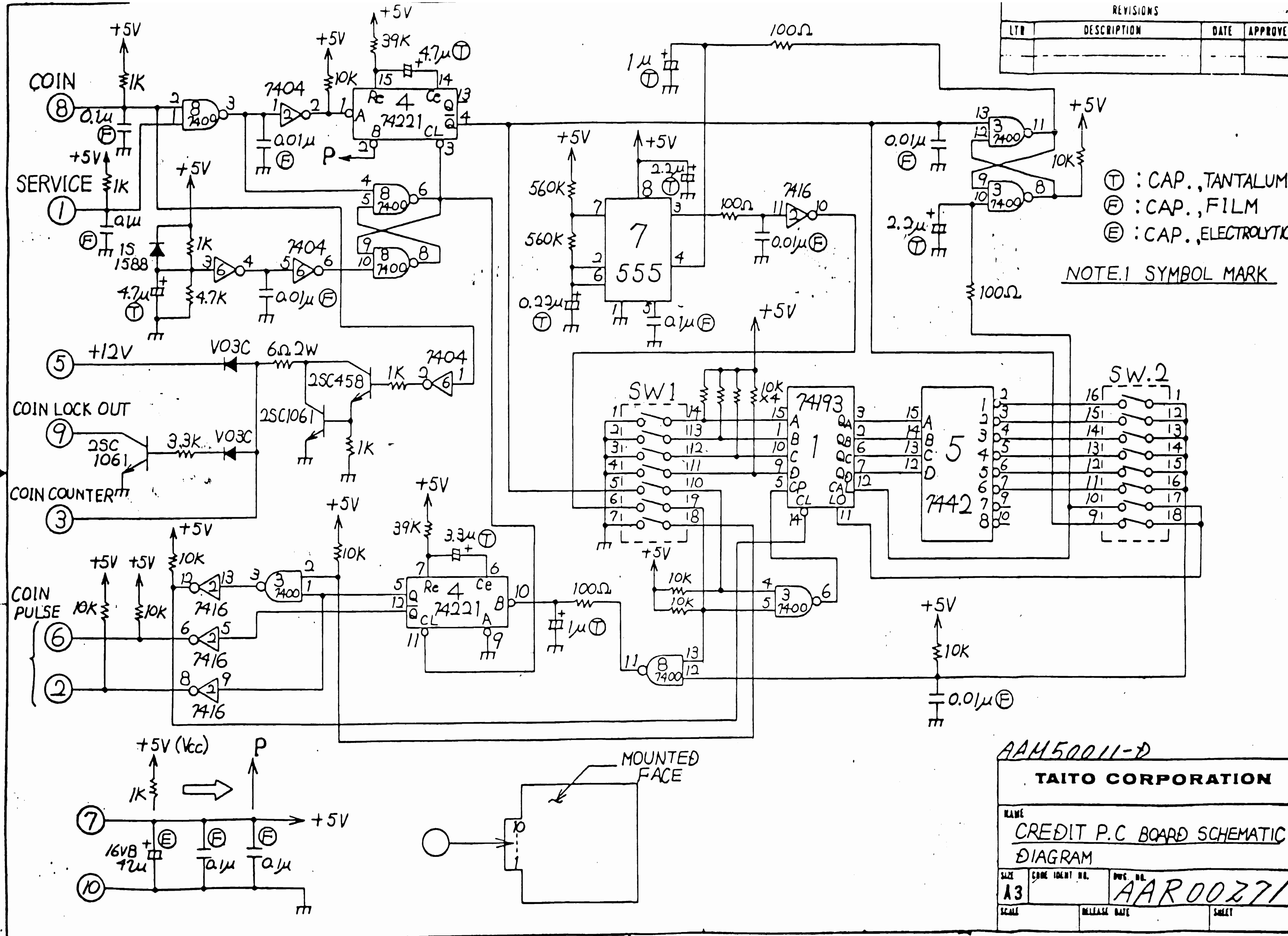
PARTS LIST

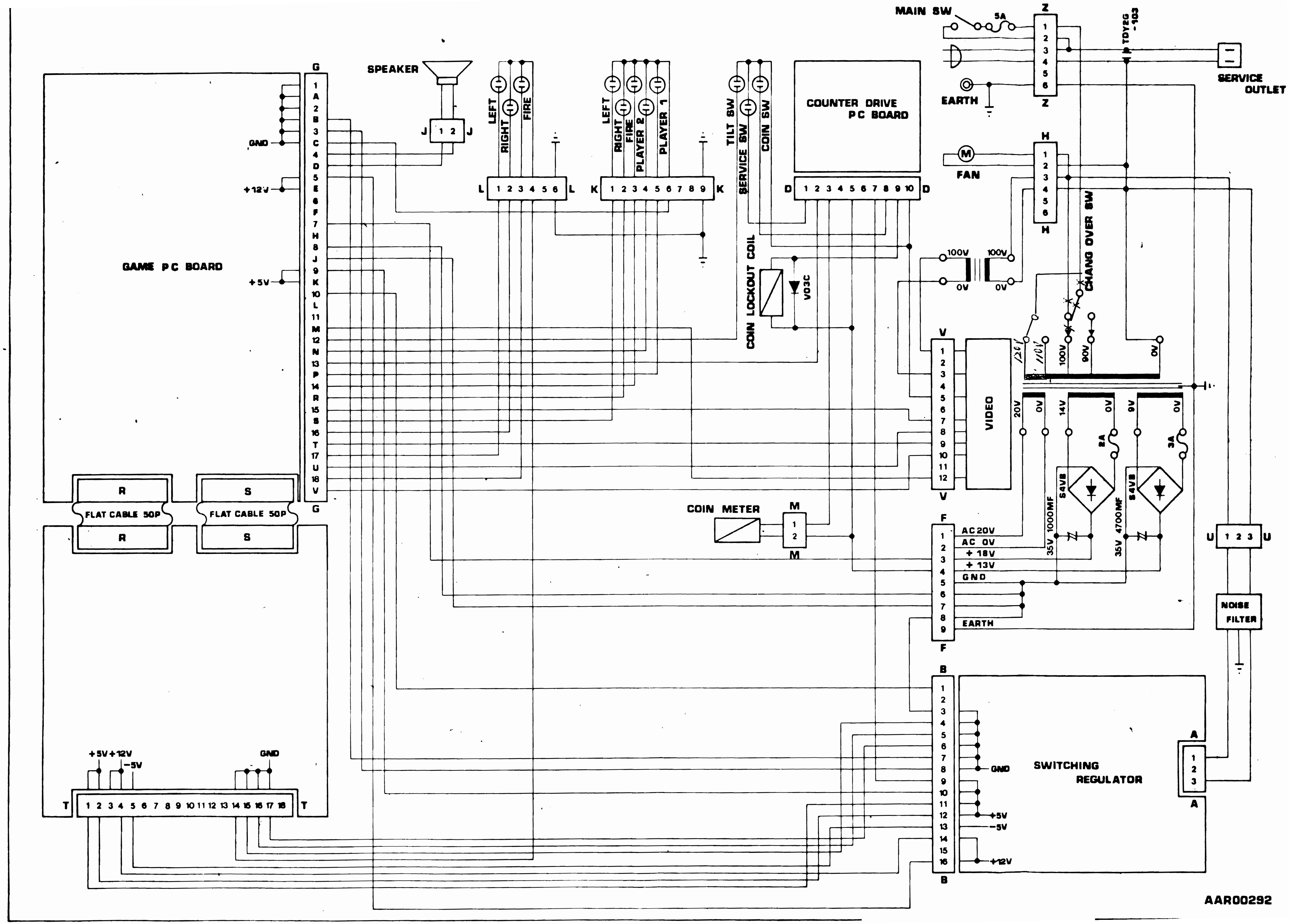
TAITO CORPORATION

NAME: CREDIT P.C BOARD Assy.

SIZE	CODE IDENT NO.	DWG. NO
A3		AAM50011-D

SCALE 1/1 RELEASE DATE SHEET


REVISIONS
LTR
DESCRIPTION
DATE
APPROVED
COIN
SERVICE
+12V
COIN LOCK OUT
COIN COUNTER
COIN PULSE
+5V (Vcc)
P
+5V
74221
555
74193
7442
SW1
SW.2
2SC458
2SC1061
V03C
6Ω 2W
1S 1588
16VB 47μ
MOUNTED FACE
Ⓣ : CAP., TANTALUM
Ⓕ : CAP., FILM
Ⓔ : CAP., ELECTROLYTIC
NOTE.1 SYMBOL MARK
AAM50011-D
TAITO CORPORATION
NAME
CREDIT P.C BOARD SCHEMATIC DIAGRAM
SIZE
A3
CODE IDENT NO.
DWG. NO.
AAR00271
SCALE
RELEASE DATE
SHEET



GAME PC BOARD
GND
+12V
+5V
SPEAKER
LEFT
RIGHT
FIRE
PLAYER 2
PLAYER 1
TILT SW
SERVICE SW
COIN SW
COUNTER DRIVE PC BOARD
COIN LOCKOUT COIL
VO3C
MAIN SW
5A
EARTH
SERVICE OUTLET
TDY2G -103
FAN
CHANG OVER SW
100V
0V
120V
110V
90V
VIDEO
20V
14V
9V
2A
3A
S4VB
35V 1000MF
35V 4700MF
AC 20V
AC 0V
+18V
+13V
GND
EARTH
COIN METER
FLAT CABLE 50P
NOISE FILTER
SWITCHING REGULATOR
+5V
-5V
+12V
AAR00292

Adjustments on Credit P C Board (No. AAM50011)

o DIP Switches SW1 and SW2 ... Play Pricing Adjustment Switches

	SW 1							SW 2							
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8
1COIN 1PLAY	ON	ON	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF
2COIN 1PLAY	"	"	"	"	"	"	"	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF
3COIN 1PLAY	"	"	"	"	"	"	"	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
4COIN 1PLAY	"	"	"	"	"	"	"	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF
5COIN 1PLAY	"	"	"	"	"	"	"	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF
6COIN 1PLAY	"	"	"	"	"	"	"	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF
1COIN 2PLAY	ON	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
1COIN 3PLAY	OFF	ON	OFF	OFF	"	"	"	"	"	"	"	"	"	"	"
1COIN 4PLAY	ON	ON	OFF	OFF	"	"	"	"	"	"	"	"	"	"	"
1COIN 5PLAY	OFF	OFF	ON	OFF	"	"	"	"	"	"	"	"	"	"	"
1COIN 6PLAY	ON	OFF	ON	OFF	"	"	"	"	"	"	"	"	"	"	"
1COIN 7PLAY	OFF	ON	ON	OFF	"	"	"	"	"	"	"	"	"	"	"
1COIN 8PLAY	ON	ON	ON	OFF	"	"	"	"	"	"	"	"	"	"	"
1COIN 9PLAY	OFF	OFF	OFF	ON	"	"	"	"	"	"	"	"	"	"	"